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Contents—Page vii

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

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CONTENTS

Chemotherapy of Cancer with Phosphotungstic Acid-H_4O_{40} and Phosphomolybdic Acid-H_3O_{40} Preparations —H. N. MUKHERJEE, B.SC., M.B., D.I.C. .. 277
Effect of Penicillin on the Bacterial Contaminants of Vaccine Lymph —V. N. KRISHNAMURTHY, M.D. 280
Blood Matching for Blood Transfusion —H. S. ANDLEIGH, B.SC., M.B.B.S., D.T.M. (CAL.), D.BACT. (LOND.) 281
Middle Class Diets —S. RAM, M.A. (CANTAB.), F.R.I.C. 285
Scabies —S. S. SHARMA, B.SC., M.B.B.S., D.P.H. 291
Case Reports :
A Case of Valvular Pneumothorax —R. N. RAJU, M.B.B.S. AND P. RAMARAO, M.B.B.S. 292
A Case of Cystic Lung —D. R. DHAR, M.B., D.T.M., M.R.C.P. AND H. GHOSH, M.B., D.T.M. 292
Hypertension due to Unilateral Pyelonephritis —RANAJIT SINGH SATYASRAY, L.M.S. 293
A Case of Round Worms —D. R. YADAVA, L.M.P. 294
Editorial :
Chopra Committee's Report and After 295
Current Topics 296
Notes and News 302
Correspondence 310
Current Medical Literature 312
Supplement ii

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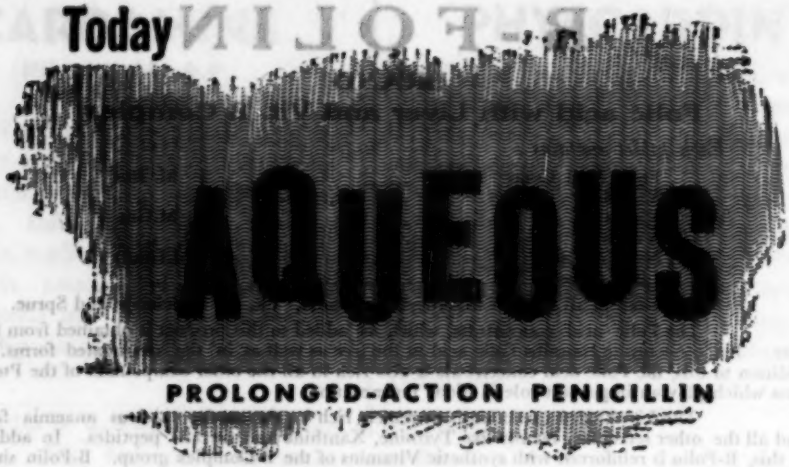

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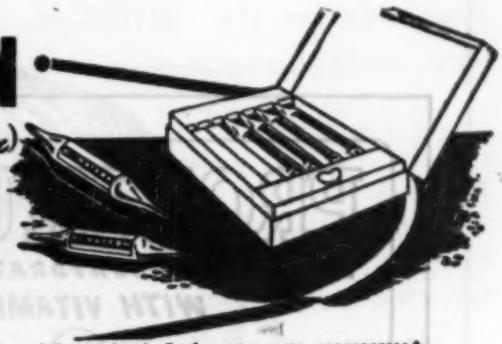

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CHEMOTHERAPY OF CANCER WITH PHOSPHOTUNGSTIC ACID-H_2O_2 AND PHOSPHOMOLYBDIC ACID-H_2O_2 PREPARATIONS

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From his work on the hypoglycemic and oxidising actions of phosphotungstic and phosphomolybdic acids (Mukherjee, 1936) the author was led to investigate the action of these substances and many allied products in cancer. Another reason for their trial in cancer is due to the fact that they react with aminoacids, phenols, uric acids, etc., substances essential to the living process.

In the intervening years persistent trials with different preparations of phosphotungstic and phosphomolybdic acids were made in cancer. From this work it gradually became evident that preparations of phosphotungstic and phosphomolybdic acids with hydrogen peroxide had definite anticarcinogenic action. These preparations in different strengths had been used in cancer but after some time it was decided for practical reasons to adhere to one standard strength of these preparations.

50 per cent solution (w/v) of (1) phosphotungstic acid (Merck & Co.) in 'Peroxyl' (May & Baker) and of (2) phosphomolybdic acid (Merck & Co.) in 'Peroxyl' were separately tried in cancer cases. The 50 per cent solution of phosphotungstic acid in 'Peroxyl' was called phosphotungstic acid-H_2O_2 preparation and the 50 per cent solution of phosphomolybdic acid in 'Peroxyl' was called phosphomolybdic acid-H_2O_2 preparation. Both these preparations in 1·0 c.c. dose were found to have anticarcinogenic action in adult cancer patients.

As these preparations were strongly acid and protein precipitants the author was constrained to mix them with buffers before intramuscular or intravenous administration. It was found, however, that mixing with buffers degraded these preparations. In a previous communication (Mukherjee, 1949) the author detailed the results obtained with buffered preparations.

It became apparent that to get better anticarcinogenic effect these preparations should be administered intravenously without buffers. It was found that these preparations in 1·0 c.c. dose when administered intravenously with 25 c.c. of 25 per cent glucose solution were tolerated by adult cancer patients and better anticarcinogenic effect was obtained.

When the phosphotungstic acid-H_2O_2 preparation was mixed with the phosphomolybdic acid-H_2O_2 preparation in proper proportions red coloured solutions were obtained. These mixed preparations (called complex phosphotungstic acid-phosphomolybdic acid-H_2O_2 preparations) were also tried in cancer cases and were found to have marked anticarcinogenic action.

These preparations are described below:

(A) *Phosphotungstic acid-H_2O_2 preparation*—A fifty per cent (w/v) solution of phosphotungstic acid in 'Peroxyl' was made and the solution was kept in a glass flask undisturbed for nearly a week. As there was continuous evolution of oxygen from the solution the mouth of the flask was kept lightly covered. A slight amount of insoluble matter formed a sediment at the bottom of the flask. The supernatant fluid was quite clear and of bright yellow colour. The supernatant fluid was carefully decanted, filtered, and then put in another glass flask for trial in cancer cases.

This preparation was not very stable as there was continuous brisk evolution of oxygen. When the preparation in 1·0 c.c. amounts was kept in sealed glass ampoules these often burst during handling. This preparation in 1·0 c.c. dose daily was given intravenously with 25 c.c. of 25 per cent glucose solution to a few cancer patients with good results.

(B) *Phosphomolybdic acid-H_2O_2 preparation*—A fifty per cent (w/v) solution of phosphomolybdic acid in 'Peroxyl' was prepared and was stored undisturbed in a glass flask with the mouth lightly covered for nearly a week. There was a considerable amount of insoluble matter forming a heavy sediment. The clear deep orange coloured supernatant fluid was carefully decanted, filtered and then put in another glass flask for trial in cancer cases. This preparation is also not very stable. When kept in sealed glass ampoules the ampoules did not burst during handling but a precipitate formed in the ampoules within a few days. As the precipitate stuck to the surface of the ampoules the clear supernatant fluid could be drawn with care by means of a syringe for intravenous administration. If some precipitate is injected rigor and febrile reaction may occur.

This preparation in 1·0 c.c. dose daily was administered intravenously with 25 c.c. of 25 per cent

glucose solution to several cancer patients for a short period (Mukherjee, 1950).

It was then tried in 3 more cancer patients. The case histories of these three patients are given below.

(C) *Complex phosphotungstic acid-phosphomolybdic acid-H_2O_2 preparations:*—

The phosphotungstic acid-H_2O_2 preparation was mixed with the phosphomolybdic acid-H_2O_2 preparation in nine different proportions as follows:—

(1) 9 volumes of phosphotungstic acid-H_2O_2 preparation was mixed with 1 volume of phosphomolybdic acid-H_2O_2 preparation (9:1 complex preparation).

(2) 8 volumes of phosphotungstic acid-H_2O_2 preparation was mixed with 2 volumes of phosphomolybdic acid-H_2O_2 preparation (8:2 complex preparation).

(3) 7 volumes of phosphotungstic acid-H_2O_2 preparation was mixed with 3 volumes of phosphomolybdic acid-H_2O_2 preparation (7:3 complex preparation).

(4) 6 volumes of phosphotungstic acid-H_2O_2 preparation was mixed with 4 volumes of phosphomolybdic acid-H_2O_2 preparation (6:4 complex preparation).

(5) 5 volumes of phosphotungstic acid-H_2O_2 preparation was mixed with 5 volumes of phosphomolybdic acid-H_2O_2 preparation (5:5 complex preparation).

(6) 4 volumes of phosphotungstic acid-H_2O_2 preparation was mixed with 6 volumes of phosphomolybdic acid-H_2O_2 preparation (4:6 complex preparation).

(7) 3 volumes of phosphotungstic acid-H_2O_2 preparation was mixed with 7 volumes of phosphomolybdic acid-H_2O_2 preparation (3:7 complex preparation).

(8) 2 volumes of phosphotungstic acid-H_2O_2 preparation was mixed with 8 volumes of phosphomolybdic acid-H_2O_2 preparation (2:8 complex preparation).

(9) 1 volume of phosphotungstic acid-H_2O_2 preparation was mixed with 9 volumes of phosphomolybdic acid H_2O_2 preparation (1:9 complex preparation).

A reddish colour slowly developed in some of these complex preparations. The maximum depth of red colour was observed in the 5:5 and 6:4 complex preparations. The 7:3 complex preparation was next in order. The 8:2 complex preparation also developed a red tinge on keeping.

Complex preparations 5:5, 4:6, 3:7, 2:8, 1:9 produced precipitates. Complex preparations 6:4, 7:3, 8:2 and 9:1 were stored in glass flasks with mouth lightly covered for a fortnight. By that time the slight insoluble matter present sedimented at the bottom of the flasks. The supernatant fluid remained clear and could be kept in sealed glass ampoules for months without any apparent degradation. Though not necessary it was nevertheless thought advisable to wrap ampoules in a handkerchief when cutting the neck with a file. These complex preparations were found to have marked anti-carcinogenic action. The 8:2 complex preparation was tried successively in six cancer patients. 1·0 c.c. of this preparation was administered intravenously with 25 c.c. of 25 per cent glucose solution daily to these cancer patients. Relief of pain within three days (after one or two injections) and definite decrease in the size of the growths within a fortnight (after 10 to 12 injections) were obtained in all these cases.

The 6:4 complex preparation was tried in an elderly female patient suffering from severe pain in the right inguinal region for the last 8 months. X-ray diagnosis of the condition was sarcoma of the neck and head of the right femur. The pain was relieved after two intravenous injections. The 8:2 complex preparation was tried in a patient with myelogenous leukemia.

Case Reports

Case 1—Patient, H.C.M., male, aged 60 years, admitted on 1-3-50:

Complaints—(*i*) Pain in the epigastric region (right side). Pain—constant and increased after meals for 4 to 6 hours. (*ii*) Bad appetite; (*iii*) Gradual loss of weight (6 months).

Present illness—Onset gradual, gradual loss of appetite later followed by epigastric pain and griping sensation.

Physical finding on admission—A lump occupying right side of the epigastric and part of right hypochondriac regions deep towards the upper part of the right rectus. Feel—firm, solid and tender. Margin—ill defined. Extent—roughly 3″ in diameter.

(10-3-50)—Hb—70 per cent., R.B.C.—5 million c.mm., , W.B.C.—4000/c.mm., Poly—88 per cent. Lympho—8 per cent., Mono—4 per cent.

Gastric analysis—No free HCl in fasting sample, Low total acidity. Blood—nil.

X-ray examination report (11-3-50)—New growth at pyloric region of the stomach.

Treatment—This patient was given 1·0 c.c. of the phosphomolybdic acid-H_2O_2 preparation intravenously with 25 c.c. of 25 per cent glucose solution daily for nine days from 14-3-50.

Physical and other findings on 24-3-50:—(*i*) No pain after taking food. (*ii*) Tenderness in the affected part—almost nil. (*iii*) General condition—improved. (*iv*) Appetite—not improved. (*v*) Extent of the abdominal lump—about 2″ in diameter. Growth appears to have definitely decreased in size.

This patient took further 6 injections. He is now free of pain and discomfort and taking normal full meals without any discomfort and the growth appears to have decreased further.

Case 2—Patient, D, male, aged 60 years, admitted on 7-3-50:

Complaints—Difficulty and burning sensation during micturition for nearly 2 months due to ulceration of the penis.

Present illness—The patient had phimosis which was operated outside over 2 months back. According to the patient the ulcerated condition of the penis developed after this operation (slitting the prepuce).

Growth at the time of admission—An ulcer at the tip of the penis encroaching on to the external urethral meatus. Base—hard and indurated. Margin—rolled out and everted. Extent—about 1" in diameter. Glans penis and preputial flaps—swollen. An ulcer 1" long on both margins of the preputial slit.

Biopsy report—Hyperplasia of stratified epithelial cells at the interpapillary region,—no breakage of basement membrane,—precancerous condition.

TREATMENT—The phosphomolybdic acid-H_2O_2 preparation in 1·0 c.c. dose was administered to this patient daily intravenously with 25 c.c. of 25 per cent glucose solution for 12 days from 9-3-50.

Nature of lesion on 24-3-50:—Extent of preputial ulcers—less than ¼" in diameter. Ulcer at tip of penis has disappeared. Swelling of glans penis and prepuce is also gone. Difficulty and burning sensation during micturition have disappeared.

This patient then took 6 more daily injections. The preputial ulcers also were then found to be healed. He was then discharged from hospital with advice to report after a month.

Case 3—Patient, L.B.; Female, aged 30 years, admitted on 15-2-30:

Complaints—(1) Irregular bleeding per vagina—1½ months.

(2) Pain—intense in lower abdomen—1½ months.

(3) Gradual emaciation and anæmia.

Internal Examination report—A proliferative growth on the cervix uteri about 2½" diameter, friable with free bleeding.

Biopsy report—Squamous cell carcinoma.

Blood Examination report—Hb—30 per cent, R.B.C.—1·5 million/c.mm., W.B.C.—9,700/c.mm., Poly—72 per cent., Lympho—24 per cent., Eosino—4 per cent.

Treatment—One c.c. of phosphomolybdic acid-H_2O_2 preparation with 25 c.c. of 25 per cent glucose solution was given intravenously on 8-3-50. The pain diminished within a few hours of this first injection. The injections were repeated every day for five days more. The pain and bleeding both were markedly reduced and the patient felt comfortable. As the veins of this patient were very thin great difficulty was felt in giving the injections. The injections were stopped for nearly a week. The 7th injection was given on 21-3-50. There was sharp rise of temperature and rigor apparently due to intravenous introduction of some precipitate. Next day the patient was free from pain but felt weak. The injections were again stopped for another week. The 8:2 complex preparation was then tried on this patient from 29-3-50. She took 4 injections of this preparation. Bleeding and pain were all reduced. Due to the nature of her veins it was found very difficult to give injections.

As the preparations described above react with metals, all-glass syringes and new needles were used for the injections.

DISCUSSIONS

Preparations of phosphotungstic acid and phosphomolybdic acids with hydrogen peroxide were found to have definite anticarginogenic action after repeated trials in cancer. Administered intravenously with glucose in the doses mentioned these preparations were tolerated by patients. Introduction of slight amounts of precipitate may cause rigor and febrile reaction. Slight rise of temperature for a few hours may occur even with clear preparations in some patients. A few patients complained of nausea. Besides these no other untoward symptom was seen following the intravenous injections. When the injections are given with 50 c.c. of 25 per cent glucose solution untoward symptoms are relieved.

The author thinks that some of these preparations with proper method of administration can be perhaps used in the routine treatment of many cases of cancer. The unstability of the phosphotungstic acid-H_2O_2 and of the phosphomolybdic acid-H_2O_2 preparation has been mentioned before. The 6:4, 7:3, 8:2 and 9:1 complex preparations can be kept in sealed glass ampoules. The 6:4 complex preparation on keeping for some time in sealed ampoules occasionally showed slight precipitation. The 8:2 complex preparation appears to be a suitable preparation for treatment of cancer. This is prepared by layering two volumes of the phosphomolybdic acid-H_2O_2 preparation on top of eight volumes of the phosphotungstic acid-H_2O_2 preparation in a glass cylinder. After two days the whole is mixed by gentle shaking. With tyrosine the preparation gives a dark green colour in about thirty minutes. It reacts with phenols, uric acid and many other substances of biological importance.

SUMMARY

1. Preparations of phosphotungstic and phosphomolybdic acids with hydrogen peroxide are described. These preparations have consistent and definite anticarcinogenic action.

2. Complex phosphotungstic acid-phosphomolybdic acid-H_2O_2 preparations are described. These preparations also have consistent and definite anticarcinogenic action.

3. These preparations when properly administered intravenously with glucose relieve the pain of cancer in a few days. After continued daily intravenous administration definite decrease in size of growths is obtained within a fortnight in most cases.

4. The therapeutic use of some of these preparations in cancer is suggested. The 8:2 complex preparation appears to be suitable for treatment of cancer.

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EFFECT OF PENICILLIN ON THE BACTERIAL CONTAMINANTS OF VACCINE LYMPH

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Heavy bacterial contamination of vaccine lymph (calf lymph) is inevitable during the process of its manufacture. None of the methods that are in vogue to bring about reduction in the bacterial content of the same are satisfactory. More recently penicillin has been tried for the purpose by many workers.

While some workers (Diaz, 1945; Morin and Turcotte, 1946; Patel, 1948) have reported spectacularly interesting results by using penicillin for the bacterial purification of vaccine lymph, my experience about the same has been most disappointing. I may say that the use of such penicillin-treated lymph is fraught with risks as penicillin not merely does not bring about any bacterial reduction, but what is more, give extremely deceptive results by the ordinary pour-plate sterility methods.

In one series of experiments, penicillin was used in concentrations varying from 500 to 2000 units per cc. of the vaccine lymph (Table 1). The sterility test by the usual pour-plate method showed all the samples to be sterile within 24 hours' contact with penicillin. While one sample was deliberately kept at room temperature (Bangalore about 23°C), all others were preserved in the cold storage. When the sterility test was repeated after an interval of one month, the sample kept at room temperature was found to give a growth of innumerable number of colonies of staphylococcus and a few B. subtilis grup of organisms, while the other samples kept in the cold storage gave no growth whatever. The samples were also treated for the presence of penicillin. While the samples kept in the cold storage showed no appreciable loss of penicillin, the one kept at room temperature revealed almost complete absence of penicillin.

TABLE I

No.	*Penicillin conc. per c.c.*	*Preser. Temp.*	*Colony count on vaccine lymphs after* 24 hrs.	2 days	3 days	1 week	1 month
I.	500 units	-5°C.	Sterile	Sterile	Sterile	Sterile	Sterile
II.	1000 units	-5°C.	Sterile	Sterile	Sterile	Sterile	Sterile
III.	1500 units	-5°C.	Sterile	Sterile	Sterile	Sterile	Sterile
IV.	2000 units	-5°C.	Sterile	Sterile	Sterile	Sterile	Sterile
V.	Nil	-5°C.	28,000 per c.c.	26,000 per c.c.	27,600 per c.c.	23,000 per c.c.	19,000 per c.c.
II. R	1000 units	Rm. Temp.	Sterile	Sterile	Sterile	Sterile	12,000 per c.c.
V. R	Nil	Rm. Temp.	25,000 per c.c.	24,000 per c.c.	22,000 per c.c.	18,000 per c.c.	13,000 per c.c.

For testing 0·1 c.c. each of undiluted lymph from Nos. I, II, III, IV & V and 1 c.c. of 1:100 dilution each of No. II R & V R was used to facilitate enumeration of colonies of growth. Most of the colonies were of staphylococcus group. A few colonies of B. subtilis were also present. Random testing indicated that the colonies were penicillin-sensitive.

These findings were further confirmed by the following experiments. Residual penicillin from the treated lymph was completely removed by alternate washing with distilled water and centrifuging four times and the sediment was tested for sterility. The plate showed innumerable number of colonies of staphylococcus and B. subtilis group of organisms (almost the same colony count of untreated lymph sample). But the unwashed lymph gave no growth whatever (Tables II & III).

TABLE II

No.	*Penicillin conc. per c.c.*	*Duration of contact with penicillin*	*Colony count on vaccine lymph samples Before removal of penicillin*	*After removal of penicillin*
I.	500 units	24 hrs.	Sterile	27,000 per c.c.
II.	1000 units	24 hrs.	Sterile	26,000 per c.c.
III.	1500 units	24 hrs.	Sterile	24,000 per c.c.
IV.	2000 units	24 hrs.	Sterile	26,000 per c.c.
V.	Nil		26,000 colonies per c.c.	

0·1 c.c. of (undiluted) lymph was used for testing samples with residual penicillin and 1·0 c.c. of 1:1000 dilution was used for testing penicillin removed samples. Random testing indicated that the colonies were penicillin-sensitive.

TABLE III

No.	*Penicillin conc. per c.c.*	*Duration of contact with penicillin*	*Colony count on lymph samples Before removal of penicillin*	*After removal of penicillin*
I.	500 units	1 week	Sterile	250 million per c.c.
II.	5000 units	1 week	Sterile	258 million per c.c.
C.	Nil (untreatd lymph)		252 million per c.c.	

0·1 c.c. of undiluted lymph was used for testing penicillin-present lymphs and 1·0 c.c. of one in a million dilution was used for penicillin-removed and untreated control lymphs.

It is evident that the organisms are not killed but just inhibited by penicillin and that once the penicillin is either removed or inactivated, the inhibited organisms begin to show themselves up. The residual penicillin in the vaccine lymph is only a mask.

Discussion

Chain and Duthie (1945), Todd (1945) and others have established that penicillin is bactericidal against susceptible organisms only during their growth phase in a nutrient medium. Further, they have pointed out that penicillin cannot exert any bactericidal action on 'resting' organisms in non-nutrient fluids. My experiments clearly indicate that penicillin is ineffective in reducing the bacterial content of the vaccine lymph. The colony counts are found to be almost the same both before and after treatment with penicillin. Bacterial contaminants in vaccine lymph present a 'resting' phase of bacterial cells in a non-nutrient medium and as such it is nothing strange that these 'resting' organisms are insusceptible to penicillin. It is likely that workers who have reported excellent results by using penicillin in the bacterial purification of vaccine lymph have not removed the interfering factor, namely penicillin, completely before conducting the sterility tests and this may explain their results. Severe sepsis may follow the use of such penicillin-treated lymphs on humans as the penicillin of the lymph may get so highly diluted by the body fluids after vaccination, as to permit the organisms to thrive and multiply in the body.

Summary

Misleading results are obtained if penicillin-treated lymph samples are tested for sterility without completely removing the penicillin beforehand as the latter acting merely as an inhibitor on organisms interferes with the sterility test. Penicillin could easily be removed from the vaccine lymph by repeated alternate washing and centrifuging. Penicillin does not bring about any bacterial reduction in the vaccine lymph.

Acknowledgment

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BLOOD MATCHING FOR BLOOD TRANSFUSION

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Blood matching is usually done to find out a suitable donor for blood transfusion. It is an important laboratory procedure and deserves the greatest possible care in its conduction. Although Weiner remarks "It is fortunate that the transfusion of incompatible blood is not always fatal, indeed in a number of instances the reactions were so mild or insidious that they passed unnoticed or were attributed to other causes," many lives have been lost due to carelessness on the part of the person carrying out the test. Blood matching should be done with all the precautions and care that it deserves. Short cuts in matching blood for transfusion must not find any place in the routine procedure of a pathologist.

I think it would not be out of place to discuss briefly the principles underlying matching and selection of a donor. When the red blood cells of an individual are mixed with the serum of the same individual, there is no clumping of the red cells; if on the other hand, they are mixed with the serum of another individual there may be clumping. This phenomenon of agglutination forms the basis for the division of all human beings into the four groups O, A, B and A B. The agglulutination of cells when mixed with serum depends upon a specific reaction between two substances, one in the red blood cells called "agglutinogen" and the other in the serum—"agglutinin." The serological differences in the blood cells are purely constitutional in nature; they are determined solely by heredity, and are not influenced by environments. The existence of the four groups and their nomenclature depends upon the presence or absence of the two agglutinogens A and B in the red blood cells. Thus we have the following groups:—

Groups	*Agglutinogens in r.b.c.*	*Agglutinins in serum*
O	Nil	alpha & beta
A	A	beta
B	B	alpha
AB	A, B	Nil

It is only when the agglutinogens A or B get mixed with their homologous agglutinins alpha or beta that agglutination takes place. Hence when whole blood has to be transfused we have to consider the following four factors:—

1. The agglutinogen of the r.b.c. of the donor.

2. The agglutinin in the serum of the donor.

3. The agglutinogen of the r.b.c. of the recipient.

4. The agglutinins in the serum of the recipient.

As both the agglutinogens as well as the agglutinins play an important part in determining the compatibility of blood, the best compatible blood is the blood of the same group, as there the agglutinogens of neither the donor nor the recipient come in contact with their homologous agglutinin. When, however, we have to find a compatible donor of a group other than that of the patient, we come to deal with the question of the universal doner. The absence of A and B agglutinogens in the red blood cells of "O" group blood leaves nothing in the red blood cells to be clumped by the agglutinins alpha or beta that might be present in the recipient's blood. Again as there is neither alpha nor the beta agglutinins in the "AB" group blood, there can be no clumping of either A or B agglutinogens that may be present in the donor's corpuscles. This is the basis of calling "O" group as the universal donor and "AB" group as the universal recipient. On the basis of the blood groups therefore,

'O' group donors can donate to all groups

A group donors can donate to A group and AB group

B group donors can donate to B group and AB group

AB group donors can donate only to AB group.

Let us consider for a moment the possibility of agglutination of the recipient's corpuscles by the donor's plasma. In actual practice the chance of such a reaction taking place is only when the agglutinin titre of the donor's serum is very high or when massive transfusion is given as otherwise the donor's plasma gets rapidly diluted by that of the recipient. Moreover there is a great disproportion between the volumes of the injected plasma and the volume of the recipient red blood cells. Finally substances similar to the agglutinogen, called the "Group specific substances", come to our rescue. These substances are present in the tissue body fluids including the plasma of the individual. These substances are specific, *i.e.*, a person of group 'A' has specific substance of the same nature as 'A' agglutinogen and has the property of absorbing or using up alpha (anti-A) agglutinins. We may therefore expect absorption of most of the agglutinins in the donor's plasma by these group specific substances and thereby the safety of the recipient's red blood cells. The real danger however exists when the titre of the donor's serum is high and this holds true as much for other group donors as for the 'O' group universal donor. 'O' group donors with titres higher than 1:16 are therefore good for 'O' group recipients, while those with a titre of less than 1:16 can donate blood to the recipient of any group: Every hospital doing transfusion work should have in their panel a number of 'O' group donors with agglutinin titres less than 1:16.

In very rare cases it will be found that although the blood of the donor matches with that of the recipient in every other way, the recipient due to what is known as "biological incompatibility" cannot be transfused with the donor's blood.

It will be clear from the above that in finding a compatible donor for a patient requiring blood transfusion, the following tests should be carried out.

1. Indirect matching *i.e.* determining the blood groups of both the donor and the recipient.

2. Direct matching.

3. Cross matching.

4. Determination of the agglutinin titre of the donor's serum.

5. Testing for Rh. factor.

6. Biological test for compatibility.

Some steps are common for all the tests and may therefore be noted in the very beginning—

1. Every piece of glassware should be clean, dry and adequately labelled.

2. A 2 per cent. Sodium Citrate in normal saline should be used as the suspending fluid for the red blood cells.

3. Collect about 5 c.c. of blood from the donor. Take about 4·75 c.c. of it in a clean dry tube to provide serum and about 0·25 c.c. in a tube containing 5 c.c. of Citrated saline, thus making a 0·5 per cent suspension of r.b.c. From the recipient it will be sufficient to draw about 2 c.c. of blood which may be distributed similarly.

4. Separate out both the sera carefully, and inactivate them by heating at 55°C. for ½ hour. In this way not only will the serum be readily available for the Kahn's test, but this decomplementisation also intensifies the agglutination by stabilising the labile proteins present in fresh serum, which inhibit the reaction (Sachs).

Indirect Matching

This is simply finding out the group of the donor and the recipient. For ascertaining the group of an unknown sample of blood we use known high titre group A and B sera which contains beta and alpha agglutinins respectively. On the left-hand half of a cleaned labelled slide take a drop of group 'A serum and on the right-hand side a drop of 'B' group serum. Put a drop of unknown red cells suspension over each drop of the serum. Mix each combination well with the glass rod using one end for each and tilt the slide backwards and forwards to get an intimate mixture of

the cells and the serum. Place the slide on the glass rods in the moist chamber and keep them covered. Leave at the bench for 15 minutes, examine for agglutination, not earlier than 15 minutes. It is better to err on the longer side. In most cases naked eye examination gives clear cut results. In *doubtful cases* examination should be made under the microscope. This enables one to distinguish true agglutination from pseudo-agglutination that is occasionally seen in acute infections. In haemagglutination real clumping of the cells occurs, whereas, there is rouleaux formation of the cells in pseudo-agglutination.

For corroboration, a further test with the unknown serum may be made. The unknown serum is mixed with known A and B washed red cells. The reactions that may happen are given below:—

Unknown Cells		Unknown Serum		
Serum group A	*Serum group B*	*Group*	*Group A cells*	*Group B cells*
+	+	AB	—	—
—	+	A	—	+
+	—	B	+	—
—	—	O	+	+

+ Indicates agglutination, and — absence of agglutination.

Very rarely undiluted serum will exhibit a peculiar inhibitory property and clumping will not occur, but if the serum is diluted agglutination will be positive. This is due to the prozone phenomenon.

Direct Matching

In direct matching we test the red blood cells of the donor against the recipient's serum. This test is very important and should not be missed irrespective of the group being compatible and must be done with all the possible precautions as to time and optimal proportions. Bloods belonging to the same group have often been found incompatible on direct matching. These may be due to subgroups not detected during determination or may be due to special types of agglutinogen or agglutinin characteristic of the particular individual. The direct matching is thus not only a check on indirect matching but also an additional test of the compatibility.

One thing that may sometimes present a little difficulty in direct matching is rouleaux formation which should be differentiated from true agglutination. In actual agglutination we get irregular sized clumps, but the deposit in rouleaux formation is a uniform one. Rouleaux formation becomes quite obvious under the microscope. Finally addition of one extra drop or two of saline quite often makes this phenomenon disappear.

Cross Matching

When the donor belongs to the compatible group and the direct matching is successful it will be helpful to do a cross-matching *i.e.*, matching the red blood cells of the donor with the patient's serum, and the red blood cells of the patient with the donor's serum. The test is carried out in the same way as the direct matching.

Determination of the Agglutinin Titre of the Donor's Serum

This test must be carried out under two conditions—

(*a*) When the blood of a group 'O' donor has to be given to another group recipient.

(*b*) When the donor and the recipients are of the same group, but large volume has to be transfused.

The titration of the serum may be set up in small tubes as follows. In the first tube is placed 0·2 c.c. of undiluted serum and in each succeeding tube is placed 0·2 c.c. of normal saline solution. To the second tube is now added 0·2 c.c. of serum, and the serum and saline in this tube are mixed, 0·2 c.c. of the mixture is transferred to the following tube and the procedure is then repeated for each of the subsequent tubes, discarding 0·2 c.c. of diluted serum from the last seventh tube. To each tube is added 0·2 c.c. of a 2·5 per cent suspension sensitive red blood cells. The mixtures are allowed to stand, with occasional shakings, for two hours at room temperature, after which time the contents of each tube are examined for the presence or absence of agglutination. A sample protocol of a serum titration would read as follows:—

Serum Dilution	1:1	1:2	1:4	1:8	1:6	1:32	1:64
Reaction	+++	+++	+±+	+±	+±	±	—

The titre of the serum in this case is 32.

Rh. Testing

The Rh factor has proved to be the most common cause of intra-group incompatibility. About 85 per cent of the whole population is Rh-positive i.e. carries the Rh agglutinogen in its r.b.c. the remaining 15 per cent is Rh-negative. The transfusion of Rh-positive blood into an Rh-negative person will cause the formation of anti-Rh agglutinins. Subsequently if such a patient is again transfused with the blood of a Rh-positive donor, there is a danger of an accident taking place. In the case of pregnant women and women with children, an accident may happen even at the first transfusion. This has been explained by Landsteiner and Wiener on the grounds that an Rh-negative mother might carry an Rh-positive child (if the father was Rh-positive) and during pregnancy might develop anti-Rh agglutinins in response to the foetal agglutinogen. The mother thus becomes immunised by the foetal antigen and produces anti-Rh agglutinins. If such a mother is transfused with Rh-positive blood, there is every likelihood of intravascular clumping taking place. From the transfusion point of view, therefore, the importance of the presence of anti-Rh agglutinins developed as a result of transfusion or pregnancy, is that a subsequent transfusion of Rh-positive blood may prove incompatible. This point has to be kept in mind when giving a second or repeated transfusion even from the same donor and for the case of pregnant women and women with children even when transfusing for the first time.

Studies have revealed that immunisation most frequently occurred by reason of the Rh factor operating in a Rh-negative individual, but not *vice versa*. On this basis the general recommendation is to transfuse Rh-negative individuals with none but Rh-negative blood; with the Rh-positive individual the Rh group of the donor does not matter.

It will be clear from the foregoing that in some cases at least it is very important to determine the Rh groups of the donor and the recipient.

Testing unknown cells for Rh factors:—

There are two common techniques for this test:—

(a) *The tube technique*:—The red cells for test are freshly washed in saline and resuspended to form a two per cent suspension. One volume of this suspension is placed with one volume of absorbed Rh negative testing sera (Human or animal) in small narrow tubes (inside diameter 7 mm.). The tubes should be placed in the incubator at 37°C. for two hours and the result then read. Another series may be kept at room temperature. Negatively reacting blood shows a clear cut circular deposit with a smooth edge, whilst positive bloods have a wrinkled sediment with a serrated border or show a granular deposit. These appearances with washed cells are usually quite definite and easy to read, but the results should be confirmed (1) by gently shaking the test tube, when in agglutination small clumps will be seen to rise in the supernatant fluid, whereas formation of a uniform emulsion indicates a negative reaction; (2) by gently removing a drop of the deposit and examining under the microscope, clumping would be easily distinguished from discrete r.b.c.

(b) *The slide technique*:—It has been found that many human sera obtained from patients sensitised to the Rh factor do not contain antibodies capable of producing agglutination. When mixed with known Rh-positive erythrocytes in test tubes in the manner described above, Diamond and Abelson (1942) found that many of these would produce very rapid agglutination of Rh-positive erythrocytes on glass slides, if very heavy suspensions of erythrocytes were used. It is therefore, recommended that in Rh grouping with known human serum, both the test tube and the rapid slide test described below should be carried out as follows:

1. Place a large drop of anti-Rh serum on a slide.

2. Add 2 large drops of a 50 per cent suspension of erythrocytes.

3. Mix thoroughly with the smooth end of a glass rod.

4. Tilt or rotate the mixture gently for two minutes preferably at 37°C.

5. Examine macroscopically and microscopically for agglutination.

It is however not easy to obtain anti-Rh serum at present and we have to find out some way of doing without it. It is the presence or absence of Rh agglutinogen in the donor's red blood cells and the anti-Rh agglutinins in the recipient's serum that matter, and so by carrying out the direct matching test between the red blood cells of the donor and the serum of the recipient, we will be able to exclude to a great extent the incompatibility arising from this factor. The direct matching by the slide technique must however be confirmed by the more sensitive tube technique which is carried out as follows:—

Equal volume of the recipient's serum and 2 per cent suspension of the donor's red blood cells are taken in a small test tube and incubated in a water bath at 37°C. for two hours. Agglutination in the test tube is then observed as already described, above.

Test for Biological Incompatibility—

This test need not necessarily be done in every case, but in cases where one wants to be very cautious and in cases of intragroup incompatibility the test should be done. 100 c.c. of the donor's blood are drawn in a sterilised sealed bottle containing 3·8 per cent Dihydric Sodium Citrate solution. 10 c.c. of the blood are drawn from the patient and divided between the two test tubes, one empty and the other containing 1 c.c. of the citrate solution. Through the same needle 50 c.c. of the donor's blood are injected. After an hour 10 c.c. of blood are again drawn from the patient and treated in the same way as the pre-transfusion sample. The citrated blood samples are centrifuged at once and the colour of the plasma in the two tubes compared. The patients plasma in the case of positive reactions will show a distinct rise in the icteric index as compared to the pre-transfusion sample. The sera from the clotted blood samples are also separated carefully and their icteric indices determined.

If there is no change in the appearance of the patient's plasma and the need for blood is urgent, transfusion may be proceeded with; under doubtful finding and where the need is not very urgent it is preferable to inject another test dose of 50 c.c. of the donor's blood and compare the third sample of blood after an additional hour. The donor's blood used for the biological test should be fresh; if only bank blood is available no sample more than 3 days old should be used.

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MIDDLE CLASS DIETS

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INTRODUCTION

Among middle class women anæmia, calcium deficiency (due to shortage of either calcium or vitamin D) and vitamin B_1 deficiency are quite common. The middle class man tends to suffer from obesity and also, often, from high blood pressure or from diabetes. It seemed interesting to try to find out whether defects in diet alone could account for these illnesses. So the diet of two households were studied for four days. Clinical examinations of the members thereof were not possible.

Secondly, where the diet was unbalanced in any way it seemed worth trying to improve it without changing its type or price very much. Thirdly, an effort was made to suggest a cheaper diet of higher nutritive value.

The standards per day against which these diets were compared are:—

Calories—2500 for a man, 2100 for a woman and 1100 for a child of five to six years of age; 2600 calories is the new United Nations' average standard and here our people are more sedentary, less in height on the whole and exposed less to the cold. The observations were made in Delhi in July.

Protein—about 50 gms. essential and 20 gms. non-essential.

Calcium—0·7 gms. and iron 15 mgms. for men and 20 mgms. for women and children.

Vitamin A—2000 I.U.; vitamin B_1—500 I.U., *i.e.*, 1500 micrograms; vitamin C—50 mgms.

When calculating Indian diets the writer has found that if the diet is made correct for the above items the amounts of phosphorus, of nicotinic acid and riboflavin are also as they should be. The limbs can be exposed more to the sun to prevent vitamin D deficiency as is proved by the fact that those of our women who work in the sun and can afford only the cheapest food suffered less from osteomalacia than the woman in the richer household who is better fed but less exposed to the sun.

RESULT

Household I—In this household were three adults, two men and one woman. All were neither fat nor thin and none showed signs of their diet being unsatisfactory in any way at present. All felt comfortably fed; none were vegetarians. The food was partly European and partly Punjabi, there being more of the latter (*vide* annexed table).

THE FOOD AS IT WAS IN HOUSEHOLD I

Type of food	*Item*	*1st day*	*2nd day*	*3rd day*	*4th day*	*Total amt.*	*Total cost* Rs. A. P.
Milk	Buffaloes'	4 pau	4 pau	4 pau	4 pau	4 seers	2 8 0
	Horlick's	—	1 oz.	—	1 oz.	2 oz.	0 7 0
Fruit or vegetable eaten raw	Grapes	3 oz.	2 oz.	2 oz.	2 oz.	4½ ch.	0 9 0
	Tomatoes	—	4 oz.	—	—	2 ch.	0 3 0
	Guava	2 oz.	2 oz.	—	—	2 ch.	0 0 9
	Apple	4 oz.	—	—	—	2 ch.	0 5 0
	Cucumber	—	5 oz.	3 oz.	8 oz.	½ seer	0 4 0
Fruit or vegetable eaten cooked	Palak	—	8 oz.	8 oz.	—	½ seer	0 4 0
	Pumpkin	—	8 oz.	—	—	1 pau	0 1 0
	Potatoes	8 oz.	16 oz.	8 oz.	8 oz.	1½ seers	0 10 0
	Lauki	12 oz.	—	—	8 oz.	2½ pau	0 3 9
	Beans, F	4 oz.	6 oz.	—	6 oz.	½ seer	0 6 0
	Guava	—	—	—	2 oz.	1 ch.	0 0 6
	Bhindi, LF	—	—	12 oz.	—	6 ch.	0 3 6
	Arbi (yam)	8 oz.	—	—	8 oz.	½ seer	0 3 0
	Carrot	4 oz.	—	—	—	2 ch.	0 1 6
	Brinjal	—	—	—	8 oz.	½ seer	0 2 0
	Onions	8 oz.	8 oz.	8 oz.	8 oz.	1 seer	0 3 0
	Mint	—	—	—	—	1 ch.	0 0 6
	Tomato	3 oz.	—	—	—	1½ ch.	0 2 6
	Green chillies	—	—	—	—	1 ch.	0 0 6
Eggs	Hen	1	1	1	1	4	0 10 0
Meat	Mutton	6 oz.	6 oz.	6 oz.	6 oz.	¾ seer	1 2 0
	Bones for soup	—	—	—	—	—	0 4 0
Fish	—	3 oz.	—	—	—	1½ ch.	0 4 6
Butter	From milk	—	—	—	—	—	—
Ghee	Pure	1½ oz.	5 oz.	2 oz.	2 oz.	10½ oz.	1 5 0
Lentils	Moung, germ.	—	4 oz.	4 oz.	—	1 pau	0 3 0
Flour	Ata	32 oz.	32 oz.	32 oz.	32 oz.	4 seers	1 3 6
Rice	Polished	6 oz.	6 oz.	6 oz.	6 oz.	¾ seer	0 6 0
Bread	English, w	1½ oz.	2½ oz.	2 oz.	2 oz.	1 pau	0 3 0
Biscuits	Home, fancy	—	2 oz.	—	—	1 ch.	0 2 0
Chocolate	Plain	—	1 oz.	—	2 oz.	1¼ ch.	0 3 0
Sugar	White	2½ oz.	2½ oz.	3½ oz.	2½ oz.	5½ ch.	0 2 9
Masalas	—	—	—	—	—	—	0 4 0
		Total for 3 adults for 4 days					13 5 3

Therefore the cost for the 3 adults for one day was Rs. 3-5-4, the cost per one adult for one day Rs. 1-1-9 and for one adult for a month Rs. 33-5-4.

The fuel for cooking cost Rs. 13-11-0 per month, that is Rs. 4-9-0 per head. So the total cost of food plus cooking fuel per head per month was Rs. 37-14-4.

Now let us compare the nutritive value of this diet with what is theoretically considered desirable.

Minerals from all sources are not equally absorbable; generally it seems that those from pulses and cereals are less absorbed than those from fresh foods like milk, meat, fruits and fresh vegetables. The vitamin C value of most foods is reduced to one third by cooking; considerable amounts of vitamins A and D are lost in the cooking and some vitamin B_1 also.

Calculations have been made to the nearest whole number.

NUTRITIVE VALUE OF THE FOOD IN HOUSEHOLD I.

(?A = possibly absorbable. PA = probably absorbable)

Item	*Amt. in oz.*	*Cals.*	*Protein* NE	E	*Carb.*	*Fat*	*Iron* ?A	PA	*Calcium* ?A	PA	*Vit. A*	*Vit. B_1*	*Vit. C*
			gm.		gm.	gm.	mgm.		mgm.		IU	micro-gram	mgm.
B. milk	128	4224	0	154	192	320	0	0	0	7680	5888	0	0
Horlick's	2	276	0	15	20	15	0	0	0	508	638	170	0
Grapes	9	117	0	2	25	0	0	1	0	0	36	0	0
Tomatoes	4	12	0	1	2	0	0	0	0	12	900	56	24
Guava	4	72	0	2	16	0	0	0	0	0	0	0	336
Apple	4	40	0	0	10	0	0	0	0	4	12	40	4
Cucumber	16	32	0	2	5	0	0	2	0	80	0	160	32
Mint	2	32	0	3	4	0	0	9	0	112	1510	0	0
Chillies, G	2	24	0	2	3	0	0	1	0	0	254	0	20
Palak	16	144	0	14	21	2	0	24	0	960	9600	240	80
Pumpkin	8	48	0	2	10	0	0	2	0	16	1280	128	3
Potatoes	40	640	0	16	140	0	0	4	0	80	0	1040	40
Beans, F	16	64	5	0	11	0	0	3	0	144	863	320	48
Bhindi, LF	12	132	0	7	24	0	0	5	0	264	108	192	16
Arbi, yams	16	304	0	5	75	0	0	3	0	192	960	240	0
Guava	2	36	0	1	8	0	0	1	0	0	0	0	53
Carrots	4	20	0	1	4	0	0	0	0	44	4000	60	8
Brinjal	8	72	0	2	13	0	0	2	0	40	8	120	13
Onion	32	192	0	6	42	0	0	3	0	256		256	32
Tomato	3	9	0	1	2	0	0	0	0	9	720	42	6
Eggs (not oz.)	4	156	0	12	2	12	0	3	0	60	1000	148	0
Mutton	24	1056	0	101	0	74	0	12	0	48	288	910	0
Fish	3	84	0	19	0	1	0	1	0	12	0	60	0
Ghee, pure	10½	2660	0	0	0	295	0	0	0	0	3670	0	0
Moung, g	8	760	54	0	128	3	19	0	320	0	528	1040	5
Ata	128	12800	436	0	2624	64	253	0	1408	0	2172	16320	0

NUTRITIVE VALUE OF THE FOOD IN HOUSEHOLD I—*Contd.*

Item	*Amt.* in oz.	*Cals.*	*Protein* NE gm.	*Protein* E gm.	*Carb.* gm.	*Fat* gm.	*Iron* PA mgm.	*Iron* PA mgm.	*Calcium* PA mgm.	*Calcium* PA mgm.	*Vit. A* IU	*Vit. B₁* microgram	*Vit. C* mgm.
Rice, p	24	2360	0	48	537	2	7	0	72	0	407	216	0
Sugar	11	1570	0	0	392	0	0	0	0	0	0	0	0
Bread, E	7½	584	18	0	117	2	2	0	32	0	0	144	0
Biscuit, F	2	272	4	0	34	14	1	0	28	0	0	36	0
Chocolate	3	444	4	0	45	28	3	0	21	0	21	78	0
Total per 4 days for 3 adults		29256	521	416	4506	833	285	77	1881	10521	34893 Before cooking	22016	720
Total per day for 1 adult		2436	43	39	375	69	24	6	157	876	2908	1834	60
Total used per day for 3 adults.		7314	130	104	1126	208	71	19	470	2630	8723 Before cooking	5504	180
Total theoretically required per day for 3 such adults.		7100	60	150	1050	277	0	50	0	2100	When eaten 6000	4500	150

It can be seen that this diet which cost Rs. 33-5-4 per head per month is almost exactly right regarding the total amounts of each item But the amounts of the essential proteins and definitely assimilable iron are small; this may account for one man being not too energetic and the woman being occasionally a very little anæmic.

Here below are suggestions as to how this diet could be slightly altered so as to make it a little nearer perfect without altering the cost.

ORIGINAL DIET IN HOUSEHOLD I AND SUGGESTED ALTERATION

Item	*Amt.*	*Calories*	*Protein* NE gm.	*Protein* E gm.	*Carb.* gm.	*Fat* gm.	*Iron* mgm. PA	*Vit. A* IU	*Vit. B₁* microgram	*Cost* Rs.	As.	P.
ORIGINAL:	*oz.*											
Mutton ..	24	1056	—	100	0	74	12	288	910	1	2	0
Moung ..	8	760	54	0	128	0	—	528	1040	0	3	0
Fruits ..	21	239	0	5	53	0	0	218	96	1	1	9
Ghee ..	10½	2660	0	—	0	295	0	3670	—	1	5	0
Potatoes ..	40	640	0	16	140	0	4	0	1040	0	10	0
Biscuits ..	2	272	4	0	34	14	0	0	36	0	2	0
Chocolate ..	3	444	—	0	45	28	0	2	78	0	3	0
Totals	—	6075	62	122	400	411	16	4706	3200	4	10	9
SUGGESTED:												
Mutton ..	48	2112	0	202	0	149	24	576	1820	2	4	0
Guava ..	20	360	0	8	82	2	0	0	0	0	5	0
Ghee, p ..	8	2024	0	0	0	165	0	2800	0	1	0	0
Potatoes ..	64	1024	0	26	324	0	6	0	1664	1	0	0
Totals	—	5520	0	236	306	316	30	3376	3484	4	9	0
Difference for 4 days ..		—555	—62	+214	—94	—95	+14	—1330	+284	—0	1	9
Difference for 1 day		—139	—15	+53	—24	—24	+3	—333	+71	—0	0	5
New Total per day		7175	115	157	1102	184	22	8181	5915	3	4	9

So at a very slightly reduced cost a diet alright as regards essential protein and better as regards assimilable iron and vitamin C is possible.

Household II—In this household were 14 adults, 7 men and 7 women, 3 of the latter being vegetarian, and 9 children under 12 years of age. The adults tended to be stout, and the women and children looked a little anæmic. Some of the women had little energy. The food was non-vegetarian Bengali food.

THE FOOD AS IT WAS IN HOUSEHOLD II

Type of food	Item	1st day	2nd day	3rd day	4th day	Total amount	Total cost Rs. As. P.
Milk	Cows'	9 sr.	9 sr.	9 sr.	9 sr.	36 seers	18 0 0
Fruit or vegetable, eaten raw	Fruit	oranges 24	pears 24	pears 24	bananas 24	—	8 0 0
	Mint	1 pau	—	—	1 pau	½ seer	0 4 0
	Radish	1½ sr.	—	1½ sr.	2 sr.	5 seer	0 15 0
Fruit or vegetable eaten cooked	Sag, palak	2 sr.	—	2 sr.	—	4 seer	0 8 0
	Sag, chaulai	—	1½ sr.	—	—	1½ seer	0 3 0
	Sag, shitaful	1½ sr.	2 sr.	1 sr.	1 sr.	5½ seer	2 4 0
	Tomatoes	1 sr.	—	—	—	1 seer	0 14 0
	Potatoes	4 sr.	4 sr.	5 sr.	3 sr.	16 seer	9 0 0
	Brinjal	2 sr.	2 sr.	—	1 sr.	5 seer	2 8 0
	Pumpkin	1½ sr.	2 sr.	2 sr.	—	5½ seer	1 6 0
	Bhindi, LF	½ sr.		1 sr.	—	1½ seer	0 6 0
	Parmal	½ sr.	2 sr.	1 sr.	2½ sr.	6 seer	2 4 0
	Lauki	1 sr.	—	½ sr.	2 sr.	3½ seer	1 2 6
	Torai	1 sr.	—	—	1 sr.	2 seer	0 8 0
	Onion	1½ sr.	1½ sr.	1½ sr.	1½ sr.	6 seer	1 2 0
Egg powder	½ oz. = 1 egg.	—	—	—	—	1½ lbs.	1 4 0
Meat	Mutton	1½ sr.	1 sr.	1 sr.	1 sr.	4½ seer	5 1 0
Butter	tinned	24 oz.	—	—	24 oz.	48 oz.	3 12 0
Ghee	Pure	1 sr.	1 sr.	1 sr.	1 sr.	4 seer	16 0 0
Oil	Mustard	½ sr.	½ sr.	½ sr.	½ sr.	2 seer	2 8 0
Lentils	Arhar	½ sr.	½ sr.	—	—	1 seer	0 10 0
	Moung	—	—	½ sr.	1 sr.	1½ seer	0 15 0
	Masoor	—	1 sr.	—	½ sr.	1½ seer	0 15 0
Flour	Ata	6 sr.	6 sr.	6 sr.	6 sr.	24 seer	7 5 0
Rice	Polished	4 sr.	4 sr.	4 sr.	3½ sr.	15½ seer	8 4 0
Sugar		½ sr.	½ sr.	½ sr.	½ sr.	2 seer	1 0 0
Masalas							1 0 0
				Total for 18½ 'adults' for 4 days		..	97 14 0

Therefore the cost for 18½ 'adults' for one day was Rs. 24-7-3; so the cost per 'adult' per day was Rs. 1-5-2 and per month Rs. 39-11-0.

The fuel used for cooking in the month concerned was 18 mds. of charcoal costing Rs. 73-11-0 and 4 mds. of wood costing Rs. 8-4-0 total cost being Rs. 81/15/- for 23 people. So the total cost per head of food and coking fuel was Rs. 43-4-4.

As for Household I the nutritional value of this diet was calculated.

NUTRITIVE VALUE OF FOOD IN HOUSEHOLD II

Item	Amt. lbs.	Calories	Proteins gm. NE	Proteins gm. E	Carbo. gm.	Fat gm.	Iron mgm ?A	Iron mgm PA	Calcium mgm. ?A	Calcium mgm. PA	Vit. A IU	Vit B_1 microgram	Vit. C mgm.
Milk, cows'	72	20,736	0	1,037	1,613	1,122	0	0	0	39,168	58,752	14,976	—
Pears	7½	1,920	0	36	432	12	0	24	0	380	2,640	3,000	—
Bananas	3	1,392	—	5	326	0	0	5	0	96	1,728	240	48
Oranges	6	960	0	19	202	10	0	0	0	960	3,744	1,344	960
Mint	1	256	0	21	35	6	0	70	0	896	12,080	0	0
Radish	10	320	0	16	64	0	0	48	0	960	0	1,440	640
Onions	12	1,152	0	38	249	0	0	19	0	1,536	0	1,536	192
Tomato	2	96	0	6	19	0	0	3	0	96	7,680	448	664
Potatoes	32	8,192	0	204	1,792	0	0	51	0	1,024	0	13,312	512
Brinjal	10	1,440	0	48	256	0	0	48	0	800	160	2,400	266
Pumpkin	11	1,056	0	53	210	0	0	35	0	352	28,160	2,816	59
Bhindi, LF	3	528	0	29	96	0	0	19	0	1,056	432	768	64
Parmal	12	1,152	0	115	211	0	0	115	0	3,820	38,400	2,688	448
Sags	22	3,168	0	317	458	35	0	528	0	21,020	210,200	5,280	1,760
Lauki	7	336	0	11	67	0	0	22	0	560	0	896	37
Torai	4	320	0	6	64	0	0	32	0	704	576	1,152	0
Egg powder	1¼	1,560	0	124	8	116	0	28	0	600	10,000	1,480	0
Mutton	9	6,336	0	605	0	446	0	72	0	288	1,728	5,472	0
Butter	3	10,128	0	5	0	1,123	0	0	0	192	36,960?	0	0
Ghee, pure	8	32,384	0	0	0	3,597	0	0	0	0	44,800?	0	0

NUTRITIVE VALUE OF FOOD IN HOUSEHOLD II—*Contd.*

Item	*Amt. lbs.*	*Calories*	*Proteins gm.* NE	E	*Carbo gm.*	*Fat gm.*	*Iron mgm.* PA	PA	*Calcium mgm.* A	PA	*Vit. A* IU	*Vit. B_1* micro-gram	*Vit. C* mgm.
Mustard Oil	4	16,384	0	0	0	1,816	0	0	0	0	0	0	0
Dal, Arhar	2	2,944	198	0	509	16	77	0	1,216	0	2,212	4,000	0
Moung	3	4,560	326	0	768	19	115	0	1,920	0	3,168	6,240	32
Masur	2½	3,524	266	0	612	7	22	0	1,368	0	2,356	4,536	0
Ata	48	76,800	2,611	0	15,744	384	1,613	0	8,448	0	13,056	98,304	0
Rice	31	48,500	990	0	11,100	49	149	0	1,189	0	6,380	4,440	0
Sugar	4	7,168	0	0	1,792	0	0	0	0	0	0	0	0
TOTAL for 4 days for these 23 people		252,412	4,391	2,695	36,597	8,782	1,973	1,119	14,141	74,598	487,412	176,768	5,082
TOTAL per day for 1 "adult"		3,411	59	36	495	119	27	15	191	1,008	6,587	2,389 Before cooking	69
TOTAL used per day for these 23 people		63,103	1,098	674	9,149	2,195	493	280	3,535	18,649	121,853	44,192 Before cooking	1,270
TOTAL theoretically required per day for 23 such people		42,100	460	1,150	8,050	716	—	345	—	16,100	4,600	34,500	1,150

It can be seen that this diet which cost Rs. 39-11-0 per 'adult' per day is rather generous calorifically, especially through the fat which is in too high a proportion. This may account for indigestion among the women and the obesity of the men. The low value of the essential proteins and the slightly low value of assimilable iron could account for the condition of the women and children.

The following are pertinent quotations on meat and milk respectively:—Regarding meat: "there are indications that it contains principles necessary for the prevention of nutritional macrocytic anaemia"; "there are indications that meat possesses haemopoietic properties". Regarding milk: "Milk has an additional advantage in that the abundance and availability of its calcium salts and phosphates enhance the effect of the vitamin D derived from other articles of diet or from sunshine. Milk although itself poor in iron renders more effective the iron contained in the diet".

Here below are suggestions as to how this diet could be slightly altered so as to make it a little nearer perfect without altering the cost. Enough essential protein for the vegetarians and riboflavin for the children is got by increasing the amount of milk used, the assimilable iron and essential protein for non-vegetarians by increasing the meat, and the fat is reduced. Butter can be had from the milk and cooking fat for the meat from the meat. Dalda or any other hardened oil can be used instead of pure ghee for cooking in the process of which most vitamins are probably destroyed. The only possible objection to this is that the trace of nickel in the former may or may not be harmful for the consumer; the writer has seen no literature on this point.

ORIGINAL DIET IN HOUSEHOLD II AND SUGGESTED ALTERATION

Item	*Amt.*	*Calories*	*Protein*		*Carbo.*	*Fat*	*Iron*	*Vit. A*	*Vit. B_1*	*Cost*
	lbs.		*gm.*		*gm.*	*gm.*	*mgm.*	IU	microgram	Rs. A. P.
			NE	E			PA			
Original										
Milk, C	.. 72	20,736	0	1,037	1,613	1,152	0	58,752	14,976	18 0 0
Mutton	.. 9	6,336	0	605	0	446	72	1,728	5,472	5 1 0
Dals	.. 7½	11,028	790	0	1,889	42	—	7,936	14,776	2 8 0
Ghee	.. 8	32,384	0	0	0	3,597	0	36,960?	0	16 0 0
Mustard oil	.. 4	16,384	0	0	0	1,810	0	0	0	2 8 0
Potatoes	.. 32	8,192	0	204	1,792	0	51	0	13,312	9 0 0
Pears	.. 7½	1,920	0	36	432	12	24	2,640	3,000	1 14 0
Sags	.. 22	3,168	0	317	458	35	528	210,200	5,280	2 15 0
Parmal	.. 12	1,152	0	115	211	0	115	38,400	2,688	2 4 0
Pumpkin	.. 11	1,056	0	53	210	0	35	28,160	2,816	1 6 0
	TOTALS	102,356	790	2,367	6,605	7,094	825	384,776	62,320	61 8 0

ORIGINAL DIET IN HOUSEHOLD II AND SUGGESTED ALTERATION—*Contd.*

Item	*Amt. in lbs.*	*Calories*	*Protein gm.* NE	E	*Carbo. gm.*	*Fat gm.*	*Iron mgm.* PA	*Vit. A* IU	*Vit. B_1* microgram	*Cost* Rs. A. P.
Suggested										
Milk ..	92	26,496	0	1,325	2,061	1,472	0	75,072	19,136	23 0 0
Mutton ..	18	12,672	0	1,210	0	892	144	3,456	10,944	10 2 0
Dalda ghee ..	4	16,384	0	0	0	1,818	0	0	0	4 0 0
Potatoes ..	40	10,240	0	255	2,240	0	64	0	16,640	11 4 0
Sags ..	44	6,336	0	634	916	70	1,056	420,400	11,560	5 14 0
Guava ..	3½	1,080	0	24	246	12	0	0	0	0 15 0
Pears ..	3½	960	0	18	216	0	12	1,320	1,500	0 15 0
Pumpkin ..	24	2,304	0	115	460	0	72	61,400	6,140	3 0 0
TOTALS		76,472	0	3581	6,139	4,264	1,342	561,648	65,920	59 2 0
Difference for 4 days		—25,884	—790	+1214	—466	—2,830	+517	+176,872	+3,600	—2 6 0
Difference for 1 day		—6,471	—198	+303	—117	—708	+129	+44,218	+900	—0 9 0
NEW TOTAL per day for this family		56,632	900	977	9,032	1,487	409	166,071	45,092	23 14 3

So at a very slightly reduced cost a diet is possible with more nearly the right amount of calories and fat, a better proportion of essential protein and assimilable iron and more of the vitamins.

A CHEAPER BALANCED DIET

The diets per 'adult' as described above cost Rs. 33/5/4 and Rs. 39/11/0 per month, and Rs. 1/5/2 per day respectively. These sums have not included the cost of cooking fuel and therefore these diets are too expensive even for the secondary school teacher on Rs. 80 a month, the starting pay according to the Sargent scheme.

Here below is a cheaper sample of a diet for such a man, with a mother or wife to support. It has been assumed that he is a non-vegetarian Hindu; a vegetarian Hindu would require more milk instead of meat and the cost would be more; a Muslim could eat beef instead of mutton and the cost would be less accordingly. If instead of ata, bajra or kangni were used the food would cost less and if rice were used the cost would be more.

Item	*Amt. oz.*	*Cals.*	*Protein gm.* NE	E	*Carbo. gm.*	*Fat gm.*	*Iron mgm.* ?A	PA	*Calcium mgm.* ?A	PA	*Vit. A*	*Vit. B_1* microgram	*Vit. C mgm.*	*Cost* As. P.
Theoretical Requirements		2,550	20	50	398	70	—	15	—	700	2,000	1,500	50	—
											When eaten			
Milk, b ..	12	396	0	14	18	30	0	0	0	720	552	0	0	3 0
Guava ..	4	72	0	2	16	0	0	1	0	0	0	0	336	1 0
Sags ..	6	54	0	5	8	1	0	9	0	360	3,600	90	30	1 6
Pumpkin ..	6	36	0	2	7	0	0	1	0	12	960	72	2	0 9
Onions & masalas ..	4	36	0	1	8	0	0	0	0	48	0	48	6	0 6
Mutton ..	4	176	0	17	0	12	0	2	0	80	48	152	0	3 0
Gur ..	2	218	0	0	50	0	7	0	46	0	88	0	0	0 6
Dalda ghee ..	½	128	0	0	0	14	0	0	0	0	0	0	0	0 6
Ata ..	12	1,400	48	0	280	7	29	0	154	0	238	1,790	0	2 3
Potatoes ..	2	32	0	1	7	0	0	0	0	2	0	52	2	1 0
TOTALS		2,548	48	42	405	64	36	13	200	1224	5,486	2,204	376	14 0
											Before cooking			

This is a better balanced diet than the above and costs less. Moreover, the one gauva could be shared by 4 people, for its vitamin C, and so the cost per head per day could be reduced to 13-3 and per month Rs. 24-13-0. From a study of four households it seems that the cost of cooking fuel can not be less at present than Rs. 2/8/- per head per month so that the total cost of fuel and food per adult per month would be Rs. 28/12/-.

Acknowledgment—Thanks are due to the following students of the Lady Hardinge Medical College, New Delhi:—

To R. M. Chuttani and S. Wazir for correcting the calculations, to D. Thaddeus and T. Virik for reading through the paper and making some suggestion.

Thanks are also due to the two people who collected the figures in the two households but who must remain anonymous.

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SCABIES

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Before the discussion of the treatment of scabies which has been so prevalent in our town for the last two years is taken up it will be helpful if one only goes through the life history of Acarus scabiei, the causative organism of this disease:

The impregnated female burrows ¼—½ inch into the skin just beneath the central layer, lays her eggs and dies. The eggs mature into larvae, cause irritation, rash and itching, develop into nymph, move about on the skin maturing into adult male and female and the impregnated female causes fresh lesion and repeats the cycle. The whole event takes 2-3 weeks.

Site—The sites chosen for burrowing are the softer parts of the body *i.e.* genitals, folds and flexor surfaces of the limbs and trunk.

Lesions—The lesions which come under observation are of 2 types, *i.e.*, simple scabies, and scabies with superadded secondary pyogenic infection which can safely be labelled as pyoscabies. Without going into the details of the characters of the lesions the nature of the infection may be classified as severe and mild and according to this classification the treatment varies and is as follows:

TABLE SHOWING OUTLINE OF TREATMENT OF SCABIES ACCORDING TO TYPES OF LESION

Nature of disease	*Local medicines*	*Internal medicines*	*Injections*
Simple scabies: Mild type	Golden lotion with equal parts of *chameli* oil	Pulv. glycyrrhiza co. every night.	
Severe type	1. Golden lotion with equal parts of *chameli* oil		
	2. Mitigal 1 part with *chameli* oil 3 parts	Sulphur powder B.D. or T.D.S.	Autoblood to mitigate the disease.
	3. Benzyl benzoate.		
Pyoscabies: Mild type	Sulphur, cylein and chalk ointment (each 5%) or Benzyl benzoate	Sulphur powder T.D.S.	Milk injection
Severe type	Above ointment or sulphur and sulphonamide ointment after peeling of vesicles with scissorrs dipped in Condy's fluid.	Cizabol tablets	Milk injections supplemented with mixed infection vaccine.

Of course the local applications are to be made with hygienic principles known to everybody and all over the body in consideration of the location of the disease. The secondary sulphur rash can be treated with simple zinc oxide or some dusting powder.

I have not tried so far colloidal sulphur injections produced recently by some firms but I am sure they could, if at all, prove beneficial only in simple scabies. Acetylarson injection advocated by certain authorities has proved a failure in my hands. The beneficial effect of sulphur given internally by mouth is also doubtful except that it acts as laxative. One more fact which I have observed is that constitutional defects which like acidity and intestinal toxaemia are present are to be tackled to completely eradicate the infection as I failed to infect a healthy individual by vaccinating discharge form a vescicle to his finger webs.

CASE REPORTS

A CASE OF VALVULAR PNEUMOTHORAX

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AND

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O.N. H.F. Child, 5 yrs. old. History of involvement in an accident with topsyturvy of a cart two hours before admission (at 11 A.M.). The mechanism of injury was not definitely given. There was pain in the front of the chest and pit of the stomach and no haematemesis nor haemoptysis.

On Examination

The patient was found in agony with dyspnoea and with pain which she was not able to particularly locate. She was lying on the left side. Pulse was 140, and respiration 72 per minute. There was limitation of movement on the right side of the chest. There was no external injury.

Palpation—The right costal margin was tender. Vocal fremitus was markedly diminished on the right side. The apex of the heart was displaced to the left. There was no clinical evidence of fracture of any rib.

Percussion—Hyperresonant note on the right side of the chest. *Auscultation*—Tubular breathing was feebly heard in the right base. There was no evidence of effusion.

Pneumothorax was diagnosed and as the dyspnoea was getting worse, aspiration of the air was considered urgent.

Treatment

Preliminary morphine 1/8 grain and atropine 1/200 grain were given. Under local anæsthesia air under pressure was aspirated by the Lillington apparatus, the initial reading being (+6+16). When about 600 c.c. of air were removed with the reading (+1+3) and it was necessary to adjust the levels in the bottles for further suction, positive pressure to the original level used to return, meaning thereby that in the interval more air was leaking from the lung into the pleural cavity. 4100 c.c. of air were thus aspirated leaving a final reading of (+2+6). 5 ounces of blood were also aspirated. The patient felt immediate relief on starting the aspiration and at the completion of the operation, the respirations slowed down to 50 per minute. Patient slept for the rest of the day but the respiratory rate did not further come down. At 2 A.M. i.e., 12 hours after the aspiration, the patient again suffered from dyspnoea and the respiratory rate increased to 65 per minute and the pulse to 140. Under local anæsthesia, a wide-bore aspirating needle was put in the 5th intercostal space in the mid-axillary line. Air escaped out with hissing sound. The needle was strapped to the chest wall and was connected to a rubber tubing the end of which dipped under sterile acriflavine solution in a bottle on the floor at the side of the bed. For sometime bubbles of air continuously escaped and then for 24 hours air used to bubble only on coughing. On the evening of the second day, the bladder had to be emptied by a catheter as she did not void ever since the injury. The patient felt much better after the continuous escape of air was instituted and the respirations came down to 25 per minute. At 12 noon, on the third day *i.e.*, 49 hours after the injury, the needle in the intercostal space was removed. At 4 P.M. i.e., 4 hours after, the respirations increased to 65 per minute and so the needle was reinserted and was connected to a rubber tubing as before. This time the needle was left in position for four days after which it was removed. As she developed slight temperature, sulphadiazine was administered for four days. The patient recovered completely with the return of normal respiratory rate and she was discharged on the 10th day. The lung seemed to have fairly expanded signified by the presence of vesicular breath sounds. There was no evidence of effusion.

Points of Interest

1. Rupture of the lung without clinical evidence of fracture rib.

2. The valvular rent in the lung persisting for a long time causing tension pneumothorax.

A CASE OF CYSTIC LUNG

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AND

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Cystic diseases of the lung are lately being considered as separate entities apart from bronchiectasis. It is now considered to be a development condition later on complicated by secondary infection.

The condition shows symptoms according to infective complications, position and dimension of the cysts, which may be large baloon type, multiple or solitary. In uninfected cases subjective symptoms when they show are pressure effects on lung parenchyma or adjacent mediastinal structures.

A definite diagnosis is really a matter of difficulty even after X-ray, lipiodol or neohydrol examination

and sometimes can only be made after operation by microscopical examination of the cyst.

Case Report

Male aged 40 years, thin-built, admitted for chronic cough with dyspnœa aggravated since last seven days.

The patient could not play since childhood on account of dyspnœa. Lately he is expectorating a lot of foetid phlegm.

On Examination—The patient is in status asthmaticus, temperature—101°F; clubbing of the fingers; chest—left side flattened and mobility impaired; left lung area—hyperresonant. Auscultation, left side, a peculiar sharp whistling breathing, bronchial in type. No adventitious sound.

Right lungs—wheezy rhonchi, with prolonged expiration, notably in right infrascapular region. Bronchial breathing in some parts.

Blood reports—W.B.C.—12400 per cmm; poly—70 per cent; lympho—28 per cent; large mono—2 per cent.

X-ray findings: Multiple small cystic sacs, with clearly defined thin limiting walls, 1×1·5 cm in diameter, in the whole of the left side and there is collection of fluid in some of the cystic sacs. Trachea slightly displaced towards the right side.

During course of treatment the condition of the patient turning worse, Lipiodol could not be attempted and after death no autopsy could be done, the body being claimed.

Discussion

Widespread use of X-ray and use of lipiodol in the diagnosis of the diseases of the chest have made possible the finding of condition like cystic disease of lung. Cystic condition of the lung develops in connection with the bronchial tree "from failure of the system of lung budding which should proceed until final alveoli are found. The budding stops prematurely either earlier or later and the termination of already formed bronchi apparently swell and thin out to occupy the space where pulmonary parenchyma should have developed and the dilated bronchi take the place of lung alveoli" (Burton Wood).

This developmental condition is found as a condition of lung alone, other organs remaining more or less normal. Cystic dilatation of the bronchi can however be undoubtedly acquired.

Histologically in cystic lung epethelial lining is uniform and constant in type. The irregular distribution of cartilage, muscles, vessel and glands differentiate them from bronchiectasis.

Some cysts communicate with bronchi and others do not. Congenital cysts usually do not communicate with bronchi and contain fluid which may however burst into a bronchus and behave as lung communicating cyst.

As a rule they give rise to few distinctive symptoms and signs unless and until secondary infection occurs or their dimension is sufficiently big to exert pressure effects.

During secondary infection a cyst communicating with a bronchus may cause haemoptysis.

Complications arising out of secondary infection usually bring these cases to our notice. Septic infection once occurring is severe and fatal.

Large infected cysts simulate lung abscess, small multiple cysts of long standing, behave like bronchiectasis, clinical difference from which is really a matter of difficulty and is of academic interest rather than of therapeutic importance.

In uninfected cases, differentiation from localised pneumothorax, emphysematous bullae, clinically is very difficult and certainty of diagnosis can only be obtained by histological examination after lobectomy. X-ray examination after lipiodol is strongly suggestive.

Symptomless congenital cysts do not require any radical treatment, apart from prophylactic measures, designed to prevent infection. Exception to this rule however applies in case of children, who are prone to infection of respiratory tract and can stand operation better than adults.

Therapy in complicated cases consists of lobectomy or pneumonectomy.

Where operative measures cannot be undertaken, postural drainage, penicillin, expectorants, creosote inhalation may alleviate symptoms.

Apart from the absence of sputum examination reports, it is a pity that lipiodol bronchography could not be done in such an interesting case—Ed., *J. Indian M. A.*

HYPERTENSION DUE TO UNILATERAL PYELONEPHRITIS

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The epochmaking experiment of Goldblatt and others conclusively proved that hypertension may be due to both unilateral and bilateral renal ischæmia. In the language of Morgan "The available evidence indicates that experimental hypertension resulting from renal ischæmia is brought about by peripheral vasoconstriction and that vasoconstriction is due probably to the presence in the blood of a pressor substance. This pressor substance is thought by many investiga-

tors to be derived from the interaction of renin, an enzyme-like substance from the kidney and an activator in blood plasma. The pressor substance has been called angiotonin (Page) and hypertension (Munoz). It is further hypotheticated that an antipressor substance exists in certain extracts of kidney, intestinal mucosa and muscle tissue which is capable of inactivating the pressor substance. This concept forms the basis of current attempts to treat hypertension by feeding and injecting renal extracts." From this point of view, the following case report, though not fully investigated, may be of some interest.

Case Report

Mr. K. C. S. is just in his 53rd year. He came to me for emaciation, weakness and insatiable hunger.

Past History—When Mr. S. was about 10 years of age, he was attacked with pneumonia. At about 46 years, that is 6 or 7 years before, he got an attack of influenza. In August 1948, he got another attack just about 2 months before his present illness.

Present illness—On the 12th October he got fever with rigor. For 3 days, he took "Hospital mixture" from the outdoor department from a Hospital but to no effect. Then he consulted a private physician and took 2 bottles of mixtures from him without any effect. Then about the 16th, he got a Quinine injection. On the following day, the 17th—as he says, he became unconscious and was admitted in a local hospital. He remained unconscious for about a week and could not say what happened. He had had no fever after he became conscious. He stayed in the hospital for about 2 weeks. He was discharged with the prescription of a tonic,—a codliver oil preparation with fruit juice, honey and glycerophosphates. On examination I found him lying in bed very weak, emaciated and hungry, and complaining pain in the precordial area.

On the 20th November, 1948, I examined him and found:

Pulse—A water-hammer pulse, about 110 per minute.

B.P.—The systolic pressure 225 mm. of Hg. The diastolic pressure could not be determined.

On auscultation—The heart was greatly hypertrophied—about four times what it is now (1948). The apex was in the 8th interspace half-inch outside the nipple line. The right border was midway between the right costosternal line and the right nipple line. The apex beat was very forceful but there was no adventitious sound. The aortic second sound was much accentuated. The second pulmonary sound was also accentuated.

In the lungs, the pause between inspiration and expiration was absent. There were signs of dyspnoea on exertion and the rate of respiration was about 20 during rest. Spleen was not palpable. The liver was just palpable and tender.

The right lumbar region was tender on pressure, and on careful palpation, a distinct, painful but movable, soft mass was palpable. It was about 6½ inches long and 5 inches broad. It was practically floating. The left lumbar region appeared to be normal.

He was distinctly anæmic and complained of headache.

On the 22nd November I was shown the urine. It was a 24 hours' collection and the volume was about 3000 c.c. On decanting, there was a heavy sediment. I asked him to take sulphathiazole tablets, a carminative mixture and gave him direction to take simple nutritious food.

On examination on the 28th November I found that the pulse was rapid, about 100 per min. B.P. systolic 200 mm. of Hg. and diastolic pressure 150 mm. of Hg. Vasomotor instability was now absent. Signs of cardiac failure now improved and aortic incompetence had disappeared. The right kidney was yet tender. The patient being intelligent, I explained to him as much as possible and he understood it now.

I prescribed a carminative mixture with alkaline iron tonic and sulphadiazine and gave further direction of foods to be taken and advised warm abdominal binder to protect the kidneys.

The diagnosis was clear. It was a floating kidney with chronic pyelonephritis. The unconsciousness was most probably due to a Dietl's crisis. The high blood pressure could not be explained on the basis of this pathology.

On the 10th of December, I found that the heart has come down to practically its normal size. Blood pressure systolic was 130 and diastolic 85 mm. of Hg. The right kidney was much reduced and tenderness had decreased. Urine was now clear even on standing and quantity much reduced. Paleness had disappeared. The insatiable hunger was gone and there was now an all round improvement.

A CASE OF ROUND WORMS

D. R. YADAVA, L.M.P.,

Samastipur, Bihar

A female child, aged about seven years, was attended by me on the 10th day of her illness when she was found suffering from a high remittant fever, unconsciousness with lungs full of moist rales, doughy and flatulent abdomen, mucous and muddy diarrhoea, tongue dry and coated, and pulse comparatively very rapid. The general condition revealed the signs of toxaemia. She was accordingly given all necessary medicines, and enough of M. & B. 693 without producing any change in the condition. I gave her three fractional doses of santonin on three consecutive days. All her abnormal symptoms disappeared when she had passed out some 78 round worms. The point of interest here is that these round worms were responsible for her illness.

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CALCUTTA, MAY, 1950

CHOPRA COMMITTEE'S REPORT AND AFTER

The Ministry of Health, Government of India, on the basis of the Chopra Committee's recommendation has already formed a Committee consisting of six allopathic, two ayurvedic and one unani practitioners with the following terms of reference:

(1) To work out and submit to the Government a detailed scheme for the development of a centre of research in Ayurvedic and Unani systems of medicine on as broad a basis as possible on the lines indicated in paragraph 251, volume I of the report of the committee on indigenous systems of medicine. In carrying out research at this centre modern scientific methods are the ones to be utilised in order that the fruits of such research may be of proved value and acceptable all over the world.

(2) To investigate and define in what manner special training in Ayurvedic and Unani systems can be incorporated during the last year or so of the undergraduate medical course in modern medical colleges, for the benefit of those desiring to qualify themselves in these systems; or alternately, to suggest how Ayurveda or Unani can be fitted in as subjects for postgraduate medical study. In examining this matter the committee will give due consideration to the fact that India cannot afford to permit her medical practitioners, whatever systems they may individually adopt to receive training which will fall short of the standard of medical education considered necessary in all progressive countries.

(3) To make recommendations regarding the policy to be adopted as regards the continuance with such modifications as may be necessary of certain existing Ayurvedic and Unani medical schools and colleges in which some teaching in subjects such as Anatomy, Physiology etc. is carried out, keeping in view the need for establishing a uniform system of medical education throughout the country and for ensuring the utilisation to the best advantage of the available resources in the country in men and material for the development of medical education.

The I.M.A. recommended[1] that there should be one system and that should be a really scientific system based on the modern advances in the field of natural sciences. In the *one* system so much of the materials in old system as are *proved* by modern tests, will be assimilated and should be taught to the students in the medical colleges and schools. Every University should have a chair of History of Medicine including Indian Medicine, with facilities of research on Ayurvedic and other indigenous medicines.

While one may not completely disagree with the terms of reference of the Committee appointed by the Ministry of Health, the I.M.A. put down definite proposals which could have been implemented by the provincial governments.

So far very little progress has been made in this direction. In the interim period provincial medical councils in indigenous system of medicine are being recognised by the State. College of Indian Medicine is being opened in various centres, without waiting for the report of this committee, appointed by the Ministry of Health. In this respect the Central Government will enunciate the policy on the basis of the report submitted by this committee. Much is being said and made on the supposed conflict between the so-called Indian medicine and modern scientific medicine. One may rightly ask whether there is any existence of a separate American Medicine, Italian Medicine, English Medicine or Japanese Medicine. As basic sciences like physics, chemistry, botany etc. are the same throughout the world, so also is medicine. It is more important to fall in line with the rest of the world because this branch of science concerns the life of a man directly. While every day basic sciences are enriching the field of scientific medicine for betterment of the life of man, we in this country decided to start colleges of Indian Medicine completely divorced from the progress of the rest of the world. Scientific knowledge is interchangeable for human good, while indigenous system is hardly so. In every country materials "proved" by modern tests, are assimilated in the modern system. There is unfortunately, a trend of a dual system in this country.

In this difficult situation the remarks of Hon'ble C. B. Gupta, Minister of Health and Supplies, Uttar Pradesh are heartening. He said[2] "while commending to you the adoption of the good and useful aspects of Indian Medicine, I emphatically declare that no advance which is not supported by scientific investigation and practice should be countenanced by any State. In any case there can be no question of any unscientific system supplanting the scientific system. Only whatever is good in Ayurvedic or Unani and stands the test of scientific scrutiny must be translated and synthesised in modern scientific system and added to the fund of world knowledge".

Every effort is being made to replace the committee appointed by the Central Government by another constituted of indigenous medical men with fresh terms of reference on the plea of cheapness and efficacy of indigenous system. This attempt should be counteracted for the benefit of the suffering millions. It has already been emphasised that cheap and efficacious indigenous medicines, which stand the test of science, will be incorporated in the modern system. Then why this fear complex?

The I.M.A. must warn once again against all attempts at setting back the hands of the clock of scientific progress. It will be doing a grave disservice to India's millions as also the cause of preventive and curative medicine—the noblest branch of science applied to the alleviation of human suffering.

[1] *J. Indian M. A.*, **19**:232, 1950.

[2] *J. Indian M. A.*, **19**:251, 1950.

CURRENT TOPICS

DRUG INDUSTRY IN INDIA

Dr. B. N. Ghosh, M.B.E., F.R.F.P.S., F.R.S. (EDIN.) while opening the Scientific Exhibition organised on the occasion of Campbell Medical School (Calcutta) Re-union on 4th February, 1950, said:—

Drug Industry in India

The drug industry in India was first started some fifty years ago as a result of the foresight of that great savant, the late Dr. P. C. Roy. From a modest beginning we have today in the Bengal Chemical and Pharmaceutical Works an organisation which may well be an envy of any foreign manufacturer. Since then many well-organised concerns have grown not only in Bengal but all over India and while we are proud of them there are shortcomings and deficiencies which require to be overcome.

One is disappointed to find that while problems for the developments of different industries are being discussed in different quarters little attention is paid to the development of drug industry. The last war made both the profession and the public to realise how India was dependent on foreign countries for her drug supply. It should be classed as one of the most vital industries and it is so intimately associated with the general health of the population that it should demand special attention of all interested in the welfare of the country especially our National Government.

Export and Import Figures—Apart from the health point of view its economic importance is great as will be evident from some of the export and import figures of the drug trade in India. In 1910 the value of imported drugs (including B.P. drugs, essential oils, proprietary medicines, medicinal chemicals, toilet products, alcohol for use in drugs, spirits for perfumery—excluding manures and narcotics) was about 75 lacs of rupees. In the year 1937 the figure was about 285 lacs showing a four-fold increase. While exports from India during 1928-29 amounted to 42 lacs, the import figure was 200 lacs of rupees. Most of the exports consisted of raw materials and the imports were finished articles generally from the exported products. The import of proprietaries into India amounted to Rs. 7,373,000 during 1937-38. These figures give sufficient evidence to show how the country is being exploited by foreign manufacturers. It will be interesting to know that tea dust weighing over four million pounds are exported annually on a nominal price, while it comes back as caffeine worth about Rs. 6,57,000. I am sure the figure is very much more since most of the sulpha-drugs and antibiotics like penicillin and its preparations and streptomycin all come from abroad which must be not less than several crores of rupees.

Drug Resources of India—Apart from drugs of vegetable origin, India is hopelessly dependent on outside sources for almost all her pure and heavy chemicals. Practically the whole range of anaesthetics, the whole group of synthetic remedies, antibiotics, preparations for radiological purposes, most essential oils, vitamins, endocrine products to mention only a few, come from abroad. That it is not impossible to manufacture these in India is shown by the fact that fine chemicals, alkaloidal preparations like caffeine, strychnine, ephedrine, morphine, etc., are being prepared. But this is only a fraction and cannot meet the actual requirements of the country. Our aim should be to make India self supporting so far as her drug requirements are concerned.

Some years ago a top ranking medical man who was at that time interested in some drug manufacturing concern accused me for not using their products which at that time was confined only to the preparation of "injectables" and a few other products. I had to tell him that although I had full sympathy for local manufacturing concerns I fail to understand how I will help indigenous products when you only bottle up foreign purchased drugs. You do not prepare fine chemicals like atropine or cocaine but only prepare ampoules here. Things have however changed since then but much requires to be achieved yet.

Obstacles to Drug Industry—There are however certain difficulties which have to be overcome before we can expect drug industry in this country to flourish and compete with foreign manufacturers. Some of the difficulties are—

1. Want of an organisation for the collection of pure and reliable vegetable drugs with arrangements for drying, curing and storing, so that the manufacturers may be assured of the purity of the drugs they use.

2. Existence of provincial excise barriers with the result that interprovincial movement of spirituous preparations is beset with difficulties.

3. The cost of transport militates against the use of raw materials growing in different parts. As an example may be mentioned that before the war Nux Vomica seeds from Mayurbhunj State were sold in the London market at half the price at which these were available in the Calcutta market.

4. Absence of a chemical engineering department to undertake designing and equipping commercial plants for the manufacture of drugs on a large scale.

Promotion of drug research is an import adjunct in any drug manufacturing concern. Standardization, evaluation of therapeutic value of new compounds and control of the quality of the finished products should be mandatory for the success of drug industry.

A careful survey of the present position of the drug industry and the future lines on which further development can be undertaken is urgently required if drug industry is to thrive.

It is also very essential that the products should not only be cheap but should be of dependable quality so that the profession may with confidence use them in preference to imported products. However much we may have the welfare of the different drug industries in our heart and would like them to prosper, it was not complimentary to any of the manufacturers that during the last emergency period the profession did not hesitate to procure foreign preparations at a much higher price in preference to the locally manufactured products. In other words they have not been able to create that confidence which is required of

them. Therefore both supervision and scrupulous care are demanded so that the preparations are of proper strength and standard and can compete with foreign products. But the quality should not be sacrificed for cheapness.

Unfortunately there are so many diverse factors which stand on the way of fair competition, that however much the different manufacturing concerns may try, it will not produce any appreciable improvement unless there is State help. The present National Government should therefore come forward and help the different industries so that they can establish themselves on a more sound basis. Unless something is done to remove the obstacles enumerated here, private enterprise will not be able to stand foreign competition even with the best of intentions. State protection whenever necessary has been given to national drug and chemical industries in all progressive countries of the world.

Development or Allied Industries—A. Chemical Industry—As drugs are primarily chemicals, their manufacture will naturally be conditioned by the development of Chemical Industry in general. The chemical industry may be divided broadly under the following heads—(1) Inorganic—metals, acids, salts, alkalies etc.; (2) Organic—acids, alkaloids, sugars, essential oils of vegetable origin, (*b*) Fermentation Industry, (*c*) Coal tar distillation products, and (*d*) synthetic organic compounds, particularly solvents and the industries dependant upon them.

B. Glass Industry—The development of glass industry has a very great bearing on drug industry. The 'container' problem is extremely important. We have now some organisations to meet this but more is required to be done in this direction.

C. Textile Industry—For surgical dressings and gauzes, etc., cotton and textile industry must provide the requirement. This has already developed in India and no difficulty need be anticipated in this direction.

D. Improvement of Agriculture with Particular Reference to Medical Plant Cultivation—Medicinal plant cultivation must be taken up on a properly organised basis and commensurate with the needs of the country. Cinchona cultivation was introduced into India earlier than in Java, but India depended primarily on imports without developing her own cinchona plantations to meet her own demands. The same situation happened in the case of Ipecacuanha. Medicinal plant cultivation, as an aid to drug industry has great potentialities and should be systematically taken up in collaboration with the "Miscellaneous crops" Committee of the Imperial Council of Agricultural Research. Supply of crude vegetable drugs of authentic source and standard quality is a pre-requisite to the development of drug industry.

Drug Development—Now that the Drugs Act is being enforced and a Pharmacy Act is going to be operated it will be possible to deal with all aspects of the control of importation, manufacture, sale and distribution of drugs. The Central Drugs Laboratory will carry out drug analysis and fix standards and will give opinion on the strength and purity of all chemicals and pharmaceutical preparations including biological products. A Committee has been appointed by the Government of India for the preparation of an Indian Pharmacopoeia in which, in addition to the drugs of international reputation, will give recognition to many Indian drugs. It is therefore imperative that our manufacturing concerns should direct their energies in a different direction so that they will be able to forestall foreign competitors who have better organisation, equipment and arrangement for research. As this is an age for the use of Synthetic and Chemotherapeutic Remedies, people have an idea that indigenous drugs have no place and have receded to the background. It will be a news to you that many Swiss and American workers are getting more and more interested in the study of our Indian Indigenous Drugs. It will be great pity if foreign manufacturers take up research on Indigenous drugs of known value and establish their pharmacological action on modern lines and capture the Indian market. I hope that our Indian manufacturers will give this aspect of the question their serious thought.

It has been the practice with most manufacturers to prepare proprietary preparations on the lines of similar foreign products. This is unfortunate. Why not bring out something original instead of imitating even the size of the bottle, labelling, etc. of the foreign preparation. It has also been noticed that most of the manufacturers, new or old, are producing the same products under different names thus increasing internal competition. This as far as possible should be avoided if healthy growth is to be attained. There is the Indian Chemical Manufacturers' Association which body can very well distribute the nature of preparation which each concern is best able to make. Thus some concerns should be only engaged in the manufacture of Galenical preparations, while others in fine chemicals and synthetic products while another group for the manufacture of biological products, hormones, etc. In this way work can be uniformly distributed and better type of products brought to the market. What we want now is a band of well qualified and expert chemists and pharmacists if we wish to establish really reliable ethical products.

Drug Research.—Another prerequisite for success and which will also create confidence is that the Drug Manufacturing concerns should earmark some sums annually for research. This aspect I am sorry to observe has been entirely neglected. I must however here mention with satisfaction the lead that has been given in this direction by the Bengal Immunity Company by establishing a research laboratory and also endowing large sums to establish beds at the R. G. Kar Medical College Hospital for therapeutic research.

There are so many well organised and successful drug manufacturing concerns all over India. If they only earmark a definite sum annually for research I am confident much progress can be made in this direction. Let them take up some particular drugs and

approach some of the local medical institutions to undertake a thorough investigation on the action, chemical composition, etc. of such drugs and bear all the expenses relating to such investigation. This will not only help them in placing before the medical profession a really good product but will incidentally stimulate research. After all an investigation made in a recognised laboratory will be of greater value than one done by themselves, if done at all. Research workers do not manufacture drugs or preparations, it is the manufacturers who derive the benefit and why should not the manufacturers come forwards and help research in more scientific and thorough manner. Since the work on Punarnava, Rauwolfia, Kut, Asoka, Kurchi have been done, it is the manufacturers that have benefitted and not the research workers.

Gentlemen, I am sorry I have taken much of your time recounting all sorts of topics which perhaps to some of you may have been boring and I thank you for your patience. It is now my privilege to declare the Exhibition open and I hope you will join me in visiting the different stalls arranged by different manufacturers to all of whom I wish renewed success in the shaping of the critical years that lie ahead of all of us in free India.

THE CARDIOVASCULAR SYSTEM IN OLD AGE

Trevor H. Howell, M.R.C.P., (EDIN.), Physician, Geriatric Unit, St. John's Hospital, Battersea, S.W. 11 writes:—

By far the commonest cause of death in elderly people is some form of heart failure. In fact, if we add the cases of cardiac disease to those due to arterial degeneration, it will account for half the total number of deaths in patients over sixty-five years old. Yet medical textbooks have but little to say about the problems of the senile circulation.

Before we consider the pathology of the circulation in old age, however, let us discuss the physiological variants for a brief moment. In a survey of 335 healthy Chelsea Pensioners, whose ages ranged from sixty to ninety-four, several interesting circulatory findings were discovered. First, it was found that about three-quarters of the men examined had systolic pressures over 160 mm. Hg. One quarter showed figures over 200 mm. Pulse pressures were usually high, being as much as 100-200 mm. in certain men. On examination of the arteries, about equal numbers had either no thickening or were only just palpable. These two groups made up a third of the total. Moderate thickening, without tortuosity or calcification, was present in half those examined. The remainder, mostly men over seventy-five, had marked thickening, tortuosity or calcification. Some of the pensioners who had been under observation for several years had passed from softer to harder arteries during this period. On feeling the pulse, arrhythmias were very uncommon, but the rate varied from forty-four to 116 per minute in fit, active men. Bradycardia was not unusual.

On auscultation of the heart, murmurs were sometimes heard. Since these pensioners were known not to have had rheumatic fever in the past, such murmurs were almost certainly sclerotic in origin. These findings have since been confirmed at post-mortem examination in other cases. Senile bruits are usually due to calcification or thickening of the valves, not to past carditis. Systolic murmurs are three times as common as diastolic ones and apical murmurs are three times as common as basal ones. The latter are almost invariably aortic in position and may be conducted up into the vessels of the neck. I have only once heard a pulmonary systolic bruit in an elderly patient. Basal diastolic murmurs are also uncommon. To reiterate, all these findings were present in healthy, active old men.

When we come to consider the various types of heart disease found in the aged we find very few cases of congenital origin. Patients with syphilitic cardiac involvement have usually died before the age of sixty, but an occasional aortitis is encountered from time to time. Aortic rheumatic disease is very unusual, but mitral stenosis sometimes allows survival to an advanced age. The oldest cases known to the writer were aged ninety-three and eighty-seven respectively, and the diagnosis was confirmed at post mortem. Ischæmic heart disease—angina pectoris and coronary thrombosis—is quite common among the elderly. Some degree of coronary atheroma is customary over the age of fifty and may be marked, even at that age. Some Indians suffer from this condition in their forties.

By far the commonest cause of cardiac failure in old age, however, is hypertensive heart disease. In the later stages, when the exhausted myocardium can no longer support its crushing burden, the systolic blood pressure tends to drop. If such patients come under medical attention only at this stage of disease, they tend to be labelled "myocardial degeneration" by those who are unfamiliar with the natural history of the disorder. Finally, the senile heart seems to be peculiarly susceptible to toxaemia. Cases of acute infections, especially bronchopneumonia, often die with a failing circulation due to a weakening left ventricle. This is often accompanied by a swollen, tympanitic belly full of inert and distended coils of intestine: a sort of paralytic ileus.

Now the forms and varieties of cardiac failure in old age need special consideration following the recent work on cardiac output and venous pressure. It has been shown that cases with hypertensive, ischaemic and valvular disease go into failure with a low cardiac output, while cases with emphysema or anæmia fail with a high output. Clinically, both types show venous congestion, but digitalis is only beneficial in the low output failures. Some patients with hypertension or coronary disease, however, may present as left heart

failure. This often shows itself by paroxysmal nocturnal dyspnoea, which wakes the patient out of sleep in the small hours of the morning, the pathological basis being oedema of the lungs. In certain cases there may be an element of the wheezing, so that a misdiagnosis of asthma may be made. Injection of adrenalin makes these cases of left heart failure worse and is contraindicated. In patients who have both chronic bronchitis and a high blood pressure, this point is a very important one. Generally speaking, dry lung bases or coarse adventitious sounds favour bronchitis when rhonchi or sibili are heard. Many small moist rales or crepitations at the lung bases suggest a cardiac element, especially if the patient is greatly distressed, frightened and fighting for air.

The clinical picture of angina pectoris is well known. Only one diagnostic point needs to be stressed. Cardiac pain occurs characteristically in the midline of the chest. Many elderly patients complain of pain around the nipple which is never due to angina, the usual diagnosis being fibrositis of the intercostal muscles. Coronary thrombosis is often less dramatic than in younger patients. It sometimes takes place, silently, without the patient's complaining of any pain at all. Often the first sign is a sudden congestive heart failure, conveniently termed "myocardial degeneration" by those who do not or cannot take an electrocardiograph to ascertain the cause.

The latter stages of the low output type of cardiac failure usually show a falling blood pressure. Some patients cannot supply their extremities with blood in consequence. Their hands and feet are cold and their pulses are feeble. When cerebral circulation is diminished, the syndrome of progressive cerebral ischæmia may occur. In the first stage of this a slight fall of blood pressure is accompanied by a change in the normal behaviour of the patient. This is usually noticed by the relatives before it is obvious to the doctor. Later, as the systolic figure falls, there is a tendency to be restless at night, but drowsy by day. The patient often wants to get in and out of bed without any obvious reason, which is a bad prognostic sign. As the downward progress continues, delusions may appear and the sick man often fails to recognize those around him. He may sprinkle his porridge with tobacco in mistake for sugar, or visual hallucinations may occur. Later he lies curled up in bed, resistive to examination, rather suggestive of the clinical picture of cerebral irritation, after a head injury. At length, the patient becomes comatose and dies, with a pulse which often cannot be detected at the wrist, or even at the elbow.

When discussing the treatment of cardiac failure in the aged, it should be remembered that most old folk recover from their first episode of cardiac defeat, some from their second, but few from their third. A confident prognosis can therefore usually be given for the first attack of congestive failure. The second or third attacks are usually marked by relative lack of response to digitalis. An increase of dosage at this stage tends to produce toxic effects, with nausea and bradycardia or else an irregular tachycardia as clinical manifestations. It must be stressed that this drug should not be given to patients whose failure is due to emphysema or gross anaemia, as it makes them worse. Many bronchitic emphysematous patients have been killed by digitalization. These warnings having been issued, we may proceed with some positive suggestion. One grain of digitalis three times a day is usually adequate for the first attack of congestive failure in hypertensive, ischaemic or valvular heart disease. After a few days, one grain twice daily is normally sufficient. Digoxin 25 mgm. may be substituted for a grain of digitalis with advantage in most cases. Digitalis alone is not sufficient for the elderly cardiac, however. It is advisable to administer Mersalyl by intravenous or intramuscular injection as well. Two cubic centimetres is the usual dose, but some patients often benefit from 4 cc. doses. This drug has a stimulating action on the cardiac muscle as well as its well-known power of inducing diuresis. Mersalyl works best when preceded by 30 grains of ammonium chloride. In the later stages of congestive heart failure in elderly patients, it often seems more potent than digitalis and may be started before digitalization begins. Where the congestive failure is due to emphysema, Mersalyl must be given with great caution as it reduces venous pressure, which is undesirable in such cases. The drug of choice in these patients is probably ouabaine, a strophanthus derivative. This increases cardiac output in about half the cases in which it is employed. By intravenous injection the dose of 1 mgm. may be given; by mouth the 2·5 mgm. tablets made by Nativelle can be used.

In cases of "cardiac asthma" paroxysmal nocturnal dyspnoea from left ventricular failure, it is best to start by giving morphia gr. ¼, intravenously if necessary. This should be followed by Cardophylin 0·28 gm., also intravenously. Where the patient has not had digitalis previously, digoxin can be administered with great benefit. Venesection is also useful in such cases to supplement the other measures designed to lower the venous pressure and to raise the output of the left ventricle.

The treatment of angina pectoris and coronary thrombosis does not differ whether the patient is old or young. It therefore needs no special consideration here. In cases where there is cardiac toxæmia, due to pulmonary or renal infection, digitalis must not be used. It appears to make the patient worse. The only measure to be added to the treatment of the original infection is the administration of small doses of brandy every hour or two. If there is a distended gut, tablets of carbachol may be given. (Thus drug must not be given intravenously). The ultimate prognosis will depend on the severity of the original infection and its response to penicillin or the sulphonamides. Our object is to tide the patient over the critical stages of his illness and to assist the liver in its work of detoxication. One point in this connection is the diffi-

culty which some old people have in using a bedpan. It is far easier for many of them to slip out of bed on to an adjacent commode without the effort, strain and consequent tachycardia associated with the unfamiliar bedpan.

Finally, let me suggest that many cases of hypertension do not require treatment. To lower their blood pressure by thiocyanates or other means usually makes them worse and may precipitate either cerebral or coronary thrombosis. If there is vertigo, half a grain of phenobarbitone is often beneficial. Otherwise they are best left alone until there are signs of impending failure. A patient is happier without a cardiac neurosis during his later years.—*Medical World*, **69**:679, 1949.

HOW DID IT HAPPEN?

Philip H. Mitchiner, C.B.E., M.D., M.S., D.CH. (HON.), F.R.C.S., K.H.S. writes:

The dropping of a 'brick' in medical practice is, I feel sure you will agree with me, quite common, and often unavoidable, but naturally as it may lead to a great deal of unnecessary misery, or even in some cases to the death of a patient, it is very essential that every possible care should be taken to eliminate the dropping of 'bricks' in our practice. If you look back into your own professional past I am sure that you will remember occasions when such errors have occurred; anyway, you must have been very fortunate if you have never dropped a 'brick' in your practice, and are unlike myself, for I can recall many times when I have done those things which I should not have done.

My experience leads me to believe that the causes of error can be epitomized under the following headings:

1. Misdiagnosis due to various causes.

2. Errors in prognosis.

3. Failure to realize accurately the patient's psychological outlook.

4. Failure to express our opinion in plain English which the patient can understand.

You may probably think of many other causes of error, but I believe these to be the common ones—the cause of most of the bricks dropped in medical practice—and I propose to discuss them more fully and so far as possible to give you appropriate illustrations from my experience.

Forty years' experience in medicine has taught me that, easy as it is to drop bricks in regard to the personalities and diagnoses of our patients, it appears to be far easier for our friends and colleagues to criticize us freely, and often injudiciously, to the patients and their friends for the 'errors' we have made. I would, therefore, start by urging that when you hear that some colleague, less learned and fortunate than yourself, is accused of misdiagnosis and its frightful consequences, you will not rush to join in the chorus of criticism of this poor unfortunate, but will seek rather to assess dispassionately the reasons why a misdiagnosis has arisen and make such explanation or excuses as may be possible in the case concerned. Do not think that I am condoning the dropping of 'bricks', or even excusing them when they fall, but I would remind you that the oath of Hippocrates surely establishes, amongst many other excellent precepts, that the father of medicine himself must have been subjected to criticism from his colleagues and patients for the dropping of professional 'bricks'.

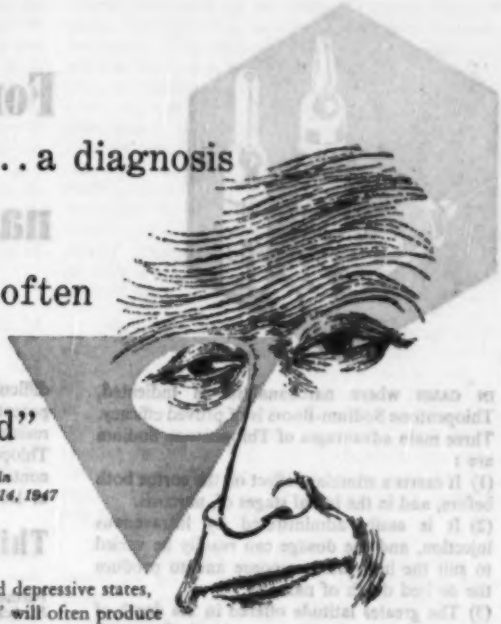
Misdiagnosis—There are, so far as I have been able to ascertain, three causes why misdiagnoses may be made in medicine. Firstly, malice aforethought, a rare but very occasionally justifiable proceeding even in medicine, as it is common practice in both politics and war. In medicine, however, it is a dangerous practice to indulge in and is liable to return to roost. There may however, be occasions when it is justifiable to withhold deliberately a diagnosis from a patient in view of a nervous disposition, but never I think, merely at the request of relations who wish the patient saved the painful knowledge that he or she is suffering from some incurable disease, usually carcinoma. I have on more than one occasion, known patients so wilfully deceived, who have been prevented from making adequate business arrangements, altering wills or investments, and so making a very great difference to the future of both themselves, their businesses and their dependents.

The second cause of misdiagnosis is ignorance, and this is one from which we have all suffered in our professional experience, but which is an inexcusable cause for the dropping of diagnostic 'bricks'. As I always tell my dressers and students, 'two heads are better than one', and there are few places in this world where a second opinion cannot be obtained when necessary, to confirm, negate, or establish a diagnosis of which the original practitioner is uncertain. It is in the interests of the patient, and in my belief, never derogatory to the status or reputation of the practitioner for him to tell a patient that he would like another opinion on the case. Unfortunately, it is all too frequent for a sense of false pride and a fear of losing the patient's confidence to deter a practitioner from seeking a second opinion, especially among his immediate colleagues, but I am convinced that in the interests of the patient, who is probably suspicious that his case is not fully understood, it is far wiser for the practitioner to seek a second opinion with the patient, than as so often happens, for the patient to seek that second opinion without the practitioner!

The third cause, and in my opinion far the most frequent, is failure to carry out a proper clinical examination on the patient, and this of course is quite

"...a diagnosis which is often missed"

Watts, C. A. H.: Endogenous Depression in General Practice, Brit. M. J. 1:11-14, 1947



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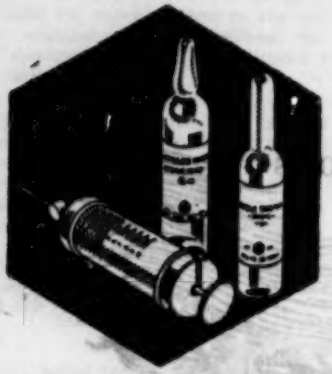

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inexcusable. Patient attention to a history may be tedious, but in my experience is seldom a waste of time, and is moreover, an occupation which need not be repeated on more than one occasion. Yet it is extraordinary how seldom one can obtain an adequate history from the doctor's notes! Physical examination, to be complete, must be carried out not only of the area complained of, but also of the whole body on at least the first occasion that the patient attends, and should it be completely negative, do remember not to dismiss the complaining patient as neurotic because you have failed to elicit any physical signs; that also, in my experience, is one of the most potent causes of the dropping of diagnostic 'bricks'.

Do not forget that there are many adjuncts to physical examination and use these freely but with discretion. X-rays, biochemistry, pathology and many other mechanical and laboratory methods are at the disposal of the medical practitioner, and his patient, and should never be neglected. But remember that they are but adjuncts to a thorough and adequate physical examination and must never be allowed to replace it.

Prognosis—Another frequent source of the dropping of 'bricks' is in the prognosis, which it is so very essential to give both to the patient, his relations and the employer on every occasion. This may be, and often is, most difficult and only long experience can enable an accurate prognosis to be given—if, indeed, it is possible at all. The duration of illness, the time away from work, the probable expense to the patient and the loss of efficiency on return to business are all matters which are of pressing interest to the patient and those about him, and if it is not possible to give a rough estimate in these matters the facts should be frankly stated, together with the reasons for the inability to prognosticate. As a general rule, I am convinced that it is better to give an overall estimate in excess of what may happen; the patient and employer are pleased by recovery before it is expected and the doctor's reputation may be thereby enhanced. At the same time, I am not at all favouring those practitioners who systematically always save their most trivial cases from imminent death! In regard to malignant disease, I am quite sure that no accurate prognosis is possible. I have seen the most apparently hopeless cases survive for years, and the earliest and —one would think—those with an excellent prognosis be dead within a few months; and I always take the line that recovery is always possible and death not certain until it occurs. For I am sure that the psychological factor of hope has much to do with the recovery of every patient.

Personality and Psychology—It is essential for the doctor to sum up rapidly and accurately the character and mentality of each patient, and this applies especially to the consultant who only sees his patients for a very short time before he arrives at his diagnosis, though it applies equally to the practitioner whose judgment of his patient's psychology, formed under more leisurely circumstances, must be even more accurate. This necessity for assessing each patient's personality and outlook, and the occasional need therefore, to modify one's own approach to his or her case, is in my mind, the most interesting feature of medicine, and I thank God continually for the diversity of His creatures. It is as you well know often essential that any two patients suffering from the same disease shall have an entirely different psychological approach according to their character, if you are to obtain equally good results in both cases. It must always be clearly realized that we are treating human patients as well as their diseases—a fact all too liable to be ignored in modern scientific medicine.

There are certain cases with whom an individual may find himself incompatible, as there are certain doctors to whom the patient feels at sight he or she cannot entrust their case. My advice to you is to do what I have always done. If a patient in my consulting room puts my hackles up or if I sense that I am raising his, I examine him, I diagnose his condition, and I advise him which colleague to go to for his treatment. I have not so far regretted this procedure—nor I hope has the patient!

Plain English—Lastly, and this I think a most important point, explain to a patient your diagnosis, your proposed treatment and the prognosis in good plain English which the patient can understand. I have no respect, nor has the patient, for the doctor who wraps these essential facts as to the patient's well-being and future health in a jargon of professional terms which it is doubtful if the practitioner himself can follow, let alone the unfortunate patient. The misunderstanding which results so commonly is the last and all too frequent causes of dropping or professional 'bricks', but it is an all too common one, especially among the younger members of the profession, for youth is ever prone to wish to impress, and my experience leads me to add that not only youth is guilty of this vanity!

Summary—It has been my endeavour to put before you some of the commoner causes of the dropping of 'bricks' which I have come across in my career in medicine. Of these, failure to conduct a proper clinical examination and inability to explain in plain English to the patient the diagnosis and its full implications are by far the commonest. Though perhaps my psychiatric colleagues would like me to add in this category, failure to appreciate the patient's psychology, and I must admit that in many cases they would be right. Less frequent causes are a deliberate attempt to deceive the patient in order to save him mental anxiety, ignorance of the condition met with failure of suitable department and behaviour with the individual patient concerned, and incompatibility of temperament which is not realized. Lastly, I would ask you again, not to be hasty in your condemnation of those of your colleagues who have had the misfortune to drop a 'brick'.—*St. Thomas Hosp. Gaz.*, **47**:182, 1949.

NOTES AND NEWS

INTERNATIONAL CODE OF MEDICAL ETHICS

The following is the 'International Code of Medical Ethics' as accepted by the World Medical Association at its last general meeting held in London on October 12, 1949.

Duties of Doctors in General—A doctor must always maintain the highest standards of professional conduct.

A doctor must not allow himself to be influenced merely by motives of profit.

The following practices are deemed unethical:

(*a*) Any self-advertisement except such as is expressly authorized by the national code of medical ethics.

(*b*) Taking part in any plan of medical care in which the doctor does not have professional independence.

(*c*) To receive any money in connection with services rendered to a patient other than the acceptance of a proper professional fee, or to pay any money in the same circumstances without the knowledge of the patient.

Under no circumstances is a doctor permitted to do anything that would weaken the physical or mental resistance of a human being, except from strictly therapeutic or prophylactic indications imposed in the interest of the patient.

A doctor is advised to use great caution in publishing discoveries. The same applies to methods of treatment whose value is not recognised by the profession.

When a doctor is called upon to give evidence or a certificate he should only state that which he can verify.

Duties of Doctors to the Sick—A doctor most always bear in mind the importance of preserving human life from the time of conception until death.

A doctor owes to his patient complete loyalty and all the resources of his science. Whenever an examination or treatment is beyond his capacity he should summon another doctor who has the necessary ability.

A doctor owes to his patient absolute secrecy on all which has been confided to him or which he knows because of the confidence entrusted to him.

A doctor must give the necessary treatment in emergency, unless he is assured that it can and will be given by others.

Duties of Doctors to Each Other—A doctor ought to behave to his colleagues as he would have them behave to him.

A doctor must not entice patients from his colleagues.

A doctor must observe the principles of "The Declaration of Geneva" approved by the World Medical Association.

Declaration of Geneva—Adopted by the General Assembly of the World Medical Association at Geneva, Switzerland, September, 1948.

At the time of being admitted as Member of the Medical Profession.

I solemnly pledge myself to consecrate my life to the service of humanity.

I will give to my teachers the respect and gratitude which is their due;

I will practise my profession with conscience and dignity;

The health of my patient will be my first consideration;

I will respect the secrets which are confided in me;

I will maintain by all the means in my powers, the honour and the noble traditions of the medical profession;

My colleagues will be my brothers;

I will not permit considerations of religion, nationality, race, party politics or social standing to intervene between my duty and my patient;

I will maintain the utmost respect for human life, from the time of conception; even under threat, I will not use my medical knowledge contrary to the laws of humanity.

I make these promises solemnly, freely and upon my honour.

MEDICAL COUNCIL OF INDIA

The following are excerpts from the Presidential Address by Dr. K. S. Ray at the meeting of the Medical Council of India on 24th February, 1950 at Bombay:

This is the first meeting of the Council since the emergence of India as Sovereign Democratic Republic. This is the first time in the long and eventful history of our country that the administration of the country will henceforth be carried on by the people for the improvement and welfare of the people themselves. This has been achieved under the great leadership of Mahatmaji, the Father of the Nation, under whose direction and guidance this evolution has been brought about by non-violent and peaceful means. Reforms came by driblets from the hands of the British Imperialists through various phases and stages. First came the Montague-Chelmsford Scheme with accompanying communal electorates and finally the Dominion Status with vivisection of India into Pakistan and the rest of India with a blood bath and genocide that ended with the martyrdom of Mahatmaji on the altar of Communalism. The Sovereign Democratic Republic State has been won by India in the memorable year 1950—20 years after the declaration of the Day of Independence by the Indian National Congress. On your behalf I sent greetings to the President, the Hon'ble Health Minister on the attainment of the Sovereign Democratic Republic by India which they greatly appreciated.

In this context of evolution, it is evident that everything in connection with Public Health and Medical Education, particularly the latter, with which this Council is mainly concerned, that was handed down to us, was what was planned and executed by Britishers after their own ideas in line with their own

traditions, conventions and interest. Therefore, the whole frame-work of medicine, medical education, medical services and medical administration of the country, as it exists to-day, is the legacy of the British Government. The present system of medical education which we have inherited is based on the British tradition of having different standards and classes and multiplicity of degrees and diplomas, the use of almost every letter of the alphabet which merely tends to create confusion as against the practice followed in America and the Continent of Europe which is to award only one degree, the M.D., to the medical men. The Council has, I am proud to say, already put its foot down on the further creation of a lower class of practitioners, *viz.*, the Licentiates, and I am glad that most of the Provinces have implemented your recommendation. I wish only that the upgrading of the existing L.M.F.'s to M.B.'s through the condensed course of study recommended for them be speeded up.

I would now give you a brief summary of the activities of the Council:

(*i*) Thanks to the co-operative and helpful attitude of the Universities, Provincial Governments and the Provincial Councils, this Council has been able to make marked progress towards securing an efficient standard of training in Indian Colleges which compared favourably with that of any other country. During the first five years the Council on the one hand laid down in broad outlines its Recommendations on Professional Education and on Professional Examinations in order to indicate the minimum requirements for securing the requisite knowledge and skill for the practice of medicine and on the other hand carried out inspections of the medical institutions affiliated to Universities granting medical qualifications and offered them advice to ensure the minimum standard. After due satisfaction the M.B., B.S. degrees of the Universities of Patna and Rangoon were placed on the first schedule. Meanwhile the Council also took up the duty of establishing reciprocal recognition of medical qualifications with such Countries as were willing to do so and in particular with the General Medical Council of Great Britain.

(*ii*) In October 1939, the Council elected Dr. B. C. Roy as its first non-official President and under his able guidance the Council covered much ground in its efforts to secure efficiency at home and honour abroad. The Council drew up minimum requirements for the appointment of teachers in medical colleges and in the basic sciences for the pre-medical course. The Council took up powers to appoint visitors in addition to inspectors and standard inspection forms were drawn up so that inspections could be searching and come up to a uniform standard.

In pursuance of the Council's recommendations the Provincial Governments started to abolish medical schools which granted the licentiate qualification after a study extending over 3 or 4 years or to raise them to University standard. In order to standardise the process of up-grading the schools, the Council further undertook the inspection of teaching of the pre-clinical and clinical subjects also, and as a consequence much improvement was effected. Besides this the Council has been keeping a close watch on the teaching in the subject of obstetrics and gynaecology as a result of which considerable improvement has been made. The Council approved for recognition the M.B., B.S. degree of the Andhra University. The World War II did affect our activities, but the Council never lost sight of its objectives and its responsibilities. In order to meet the greatly increased needs of the Army the Council accorded temporary recognition to certain medical qualifications including those of Osmania and Mysore Universities. For the duration of war and three years thereafter, the Council allowed certain concessions to Licentiates from schools to encourage them in obtaining the M.B., B.S. degrees from colleges in larger numbers.

The question of the institution of an All-India Register was also taken up during this period. Under the Medical Diplomas Act, 1939, provision was made relating to medical diplomas granted in United Kingdom or Burma which was separated from India. The negotiations with the General Medical Council resulted in the recognition by that Council of more Indian degrees and many with retrospective effect. The Council recommended to the Government of India the withdrawal of recognition in India of certain British qualifications which did not come to the minimum standard. After considering the position with regard to reciprocity with other countries the Council did not favour indirect reciprocity *i.e.*, reciprocity through General Medical Council, and therefore removed from its Schedule II all foreign qualifications except those from countries which agreed to reciprocate directly with India. The Council further resolved to ask the Government to explore the possibility of establishing a General Reciprocity Board for the British Commonwealth for the alignment of the Indian and Commonwealth medical degrees.

(*iii*) In October, 1945, the Stewardship of the Council was placed in the hands of Dr. A. S. Erulkar who ably led the Council still further towards increasing efficiency and uniformity in medical education in this country and closer reciprocal relations with other countries. The membership qualification granted by the College of Physicians and Surgeons of Bombay was included on the 1st Schedule as also the M.B., B.S. degree of the Agra University. The Council accepted in general the broad principles laid down by the Bhore Committee with reference to professional education. A Minimum Requirements Sub-Committee was formed for the purpose of laying down the minimum requirements for the guidance of upgraded and newly established institutions. This Sub-Committee was also entrusted with the task of revising the Council's recommendations on professional education in the light of the latest ideas and developments. The Council revised the minimum period of study required by the licentiates who desired to proceed for the M.B., B.S. degree and forwarded to the Government its proposals regarding the establishment of an All-India Medical Register which is to include the names of all medical men borne on the various provincial registers. In order to have uniformity in recognition and registration the Council accepted the principle of recognising for purposes of registration in the Provincial registers of foreign medical quali-

fications not already on the Second Schedule when held by an Indian national after due investigation of the individual's merits. In the light of experience the Council revised its Regulations and the rules were revised in the form of Standing Orders. On the 15th August, 1947, the jurisdiction of the Council was limited to the new Dominion of India and its membership was modified accordingly. Since the last inspections a few new medical colleges were created and many more medical schools upgraded to the college standard and all these new or upgraded colleges were affiliated to the existing Universities already recognised or to those not so recognised. The Council therefore commenced another round of inspections of both old and new institutions and visitations were conducted of various institutions in the process of upgrading in order to offer them guidance at the initial stages. The General Medical Council recognised the Andhra degrees and in view of the proclamation of war with Italy and Japan further recognition of their qualifications was discontinued. Under the changed conditions the Council adopted a resolution for making fresh attempts to establish reciprocity with China and America and other countries and as Dr. B. C. Roy was visiting various countries in 1947 he was authorised by the Council to explore the possibilities and basis for reciprocal relations with various countries. In the light of Dr. Roy's suggestions it was decided to approach various countries for a fair scheme of reciprocity.

(*iv*) You did me the honour of electing me to this high office knowing my limitations and as the choice was yours, I assumed charge in December 1948. At the last session I reported to you the further progress made in our activities both internal and external.

(*v*) Your recommendations with regard to the amendments to the Indian Medical Council Act 1933 and the provision for an All-India Medical Register are still receiving the consideration of the Central Government as also the question of setting up a General Reciprocity Board.

(*vi*) As recommended by you the L.M.S. diploma granted by the East Punjab State Medical Faculty has been placed in the first Schedule and the L.M.S. diploma granted by the Punjab State Medical Faculty, when granted before the 15th August, 1947, has been included on the Second Schedule. The M.B., B.S. degree of the East Punjab University as approved by you has also been included on the First Schedule.

(*vii*) Your Executive Committee's recommendadations with regard to the increase in the number of admissions to the Medical Colleges is being placed before you as also with regard to the recognition of M.M.F. diploma granted by the State Medical Faculties of Bengal and West Bengal.

(*viii*) The sub-committee appointed by you at the last session to draw up a set of model bye-laws and code of medical ethics for adoption by the various Medical Councils in the Indian Union has commenced functioning and their report when received will be placed before you.

(*ix*) Your Executive Committee has given careful consideration to the question of compulsory medical internship after basic qualification and its recommendation is being placed before you.

(*x*) In view of the large number of candidates seeking admissions to medical colleges, your Executive Committee has under consideration a suggestion for adopting double shift system in medical institutions. The Committee is considering the Council's position and responsibilities with regard to the maintenance of a uniform standard of post-graduate medical education in India.

(*xi*) Your Executive Committee has under consideration the communication received from the West Bengal Government regarding amendments to the Indian Medical Degrees Act of 1916.

(*xii*) Your Executive Committee's observations with regard to the arrangements for medico-legal work and the teaching of Forensic Medicine are being placed before you.

(*xiii*) We have completed the Second round of inspections of the courses of studies, facilities for teaching and examinations in the pre-clinical subjects of all the medical colleges, old and new, affiliated to the Universities included on the First Schedule. Besides this the Utkal University has started granting M.B., B.S. degree and we have carried out the necessary inspections there as well. On a request from the Gauhati University a visitation was carried out of the Assam Medical College, Dibrugarh. The Lady Hardinge Medical College, New Delhi, has been affiliated to the Delhi University who will be granting M.B., B.S. degree and the matter of its recognition is receiving the attention of your Executive Committee. The observations of the Bombay Government and the Bombay University on the visitors reports at the B. J. Medical College, Ahmedabad are under the consideration of your Executive Committee. The M.B., B.S. degree of the Mysore University—as approved by you—will shortly be placed on the schedule and the question of similar recognition to the M.B., B.S. of Osmania will be taken up when the Hyderabad authorities are ready for an inspection by this Council. The Minimum Requirements Committee appointed by your Executive Committee has appointed eleven sub-committees in the various subjects of medical studies. These sub-committees have been thoroughly looking into the requirements of each subject and their reports will be considered by the General Committee to finalise the requirements for your consideration.

(*xiv*) University medical education in India dates back to 1857 when the Medical College at Calcutta became affiliated to a University and by the year 1925 there were ten University medical colleges including the Lady Hardinge Medical College exclusively for women. When the Medical Council of India was established only six Universities were on the First Schedule having eight medical colleges. Three Universities *viz.* Patna, Rangoon and Andhra, were added by the Council having each one medical college. Subsequently the examining body named the College of Physicians and Surgeons of Bombay was added followed by the Universities of Agra and East Punjab, bringing the total number of medical colleges to

thirteen. With the abolition of Licentiate standard and creation of new medical colleges and Universities as also the accession of Indian States to the Indian Union the number of Universities, Examining Bodies and Medical Institutions with which the Council has to deal now has increased to 16 Universities, 4 Examining Bodies or State Medical Faculties and 35 medical colleges. Even this number is not sufficient to meet the increasing demand for qualified medical men and I am sure more teaching institutions will have to be set up ere long as also for post-graduate studies and specialist's training. At this time of transition the Council's responsibilities are all the more greater as it has to ensure more efficiency and higher standard of medical education in the country on a uniform basis and at the same time enable the production of larger number of well trained and more competent medical men for the teeming millions of our motherland. In this task we have to keep abreast of the changed conditions and the rapid developments in the medical world. We are to make haste but slowly, steadily and cautiously.

(*xv*) The Council has also to deal with the Provincial Governments who allot funds to the medical institutions and on their attitude depends much of our progress. The Council is fully conscious of the prevailing acute financial stringency and we appreciate very much the way in which the medical schools have been upgraded in the Provinces within such a short time and the helpful considerations given to our recommendations. I would however reiterate my suggestion that each Government should fix a percentage of its revenue as their minimum to be spent on medical education and medical relief.

(*xvi*) With the inclusion of Indian States in the Union the number of Medical Councils, with which this Council has to deal, has increased to thirteen. The proposal for an All India Medical Register brings us closer to these bodies. Although they enjoy statutory powers of their own they have shown considerable imagination and co-operation in the task of bringing about uniformity in the registration of medical qualifications. Since the Medical Council of India is empowered to recognise Indian and foreign medical qualifications on an All India basis these Councils will have to be guided by this Council in matters of registration and medical ethics. I trust with our joint efforts we will be able to evolve effective procedures to achieve our common objectives.

(*xvii*) The reciprocity of recognition of medical qualifications at present existing between the Medical Council of India and the General Medical Council of Great Britain is neither fair nor satisfactory. While this Council recognises all the British medical qualifications admitted to table 'F' of the Act the General Medical Council does not accord similar recognition to the Indian qualifications as approved and included in the First Schedule of the Indian Medical Council Act. The recognition by the General Medical Council of the qualifications of MCPS (Bombay), MBBS (Agra) and MBBS (East Punjab) is still pending with that Council and this prolonged delay does involve considerable hardship to candidates for post-graduate training in United Kingdom. With the changed political conditions, this Council is naturally anxious to secure honourable and equal opportunities for Indian Nationals abroad.

(*xviii*) Previously the Council had approached 27 countries for establishing reciprocity, out of which 4 agreed to a direct reciprocity, 14 agreed to reciprocity through General Medical Council while others did not choose to reply. Later on it was felt that indirect reciprocity did not work properly nor could it enhance our prestige abroad. Therefore, the Council recognised the qualifications of only those countries who had agreed to reciprocate directly. Now we have opened up negotiations with 39 countries and states including the American and Canadian States not only for reciprocity in medical practice but in post-graduate training as well. The replies so far received reveal marked disparity in the conditions obtaining in the various countries under the local legislation and procedure for medical practice. In most of the countries the possession alone of a University degree in medicine does not entitle one to registration for practice and he must in addition pass an examination conducted by the local official licensing body. In addition to this many countries insist that the practitioners should be their 'nationals'. Thus the position radically differs from India. As regards post-graduate medical education almost all the Universities and most teaching bodies in other countries admit Indian students with Indian qualifications duly recognised by the Indian Medical Council and they do so even if their Government does not recognise Indian degrees or practice. In United Kingdom however the possession of a registration with General Medical Council is *sine qua non* for post-graduate qualifications. In fact French authorities have themselves suggested this procedure. These communications are receiving the consideration of your Executive Committee.

(*xix*) The Council's activities and work have no doubt been steadily increasing and in order to maintain our progress and discharge our responsibilities under the new set up the Council should have sufficient funds. The Council has no income of its own at present and it is entirely financed by the Central Government. We have been very circumspect and economical in incurring expenditure throughout and are fully alive and receptive to the demands of economy, but we cannot work efficiently and effectively much less with dignity if we are not given sufficient funds in accordance with our needs and requirements. I have been very anxious about the position of our staff and I maintain that the Council cannot function properly unless it has sufficient and well paid staff and in this respect I plead with the Government to respect Council's judgement and decisions. In Rajkumari Amrit Kaur we have a sympathetic friend and mentor and I am sure she will use her good offices to see that the Council is not financially strangled.

(*xx*) We are glad to note that the All India Council of Post-graduate Education has been inaugurated with the object of establishing a uniformity of standard of the Post-graduate medical education in this country. In the attainment of this object the

Indian Medical Council is also intimately concerned. The Post-graduate medical education can never attain a high standard without a sufficiently high standard of basic medical qualification which is under the direct supervision and control of the Medical Council of India. The success of the scheme must depend largely on the co-operation and co-ordination between the two Councils and on our behalf we offer the Post-graduate Council our fullest co-operation.

At the present moment there are three more Councils for the regulation and control of the Dental Education, Pharmacy and Nursing and it is desirable that there should be close co-ordination and it is felt that a central co-ordinating body like the Indian Medical Council would probably do better in establishing reciprocal relationship with other countries instead of each body trying to negotiate directly

(*xxi*) I cannot close without paying my tribute to the members of this Council for their ungrudging help and assistance. We have amongst our members many experienced and reputed educationists as well as administrators who are quite alive to the task before them and I can assure that whatever and how greater the responsibilities have devolved on them due to the inauguration of the Sovereign Republic State, they will rise to the occasion and will not allow progress to be hindered and will see that Rajkumariji's desire as expressed in the last Radiological Conference, *viz.*, "India should be content with nothing short of the highest available elsewhere in the world" is attained.

INDIAN SCIENTIST ACCEPTS HIGH POST IN WHO

Major-General Sir Sahib Singh Sokhey, who for the last 18 years has directed the Haffkine Institute, Bombay, has now accepted a high international post as Assistant Director General of the World Health Organizzation, it was announced on 2-3-1950. Very shortly he is to leave India to take up his new duties in Geneva, Switzerland.

At Geneva Headquarters of WHO, Dr. Sokhey will succeed Dr. Raymond Gautier as Assistant Director General in charge of the Department of Technical Services which includes the Divisions of Epidemiology, Health Statistics and Therapeutic Substances. The Department of Advisory Services, responsible for field work and direct assistance to Governments, is under another Assistant Director General, Dr. Martha Eliot, (U.S.A.), who visited India last September.

The Director General of WHO is Dr. Brock Chisholm of Canada.—*Press Release, WHO.*

TUBERCULOSIS CONTROL IN SOUTHEAST ASIA—WHO/UNICEF SPONSOR CENTRES IN INDIA, BURMA, CEYLON & THAILAND

Two important steps have recently been taken by the World Health Organization to help countries in Southeast Asia attack their vast tuberculosis problems. Plans are now well under way for the establishment, as a joint WHO/UNICEF undertaking, of three training and teaching tuberculosis centres in India to be followed shortly by other such centres in Burma, Ceylon and Thailand. Moreover, WHO has appointed Dr. Edmond McWeeney, of Dublin, Ireland, as a roving tuberculosis adviser for the region. Dr. McWeeney arrived this week at the WHO Regional Headquarters in New Delhi.

Out of the three international training and teaching tuberculosis centres planned for India, two may open in the near future. It was recently announced in New Delhi that the Indian Health Ministry has granted Rs. 212,400, to the Tuberculosis Association of India and Rs. 125,600 to the Bihar Government for the construction of centres at Delhi and Patna, respectively. Final arrangements for the third centre to be set up in Trivandrum, in the southwestern part of the country, are being made during a visit to that region of Dr. W. H. Tytler, WHO laboratory consultant. Meanwhile, plans are proceeding for the development of existing anti-tuberculosis centres in Colombo (Ceylon), and Rangoon (Burma) into training and teaching centres under WHO and UNICEF leadership.

The primary functions of the WHO/UNICEF tuberculosis centres will be to train medical and technical personnel in modern methods of prevention, diagnosis and treatment. Each centre will have a nucleus containing a central tuberculosis clinic with a small number of beds, and a laboratory. Attached to the centre, it is anticipated, will be a mobile dispensary serving a rural area, and equipped to carry out accurate diagnosis and give simple treatment. BCG vaccine, X-Ray apparatus, laboratory and other supplies as well as part of the international staff, will be furnished by UNICEF. WHO is providing technical guidance in these projects.

Before joining WHO, Dr. McWeeney was Senior Medical Inspector in the Department of Health of Ireland, charged with supervising the national tuberculosis services. Previously he held various medical posts in England, Iraq and Palestine as a member of the British Royal Air Force. Dr. McWeeney holds a Medical degree from University College, Dublin and received a Diploma of Public Health from the same University. He is a member of the Irish Tuberculosis Society, of the Statistical and Social Enquiry Society of Ireland and of the Tuberculosis Consultative Council for Ireland. He is the author of various papers dealing with technical and administrative aspects of tuberculosis control.—*Press Release, WHO.*

NATIONAL GASTROENTEROLOGICAL ASSOCIATION: 1950 AWARD CONTEST

The National Gastroenterological Association again takes pleasure in announcing its Annual Cash Prize Award Contest for 1950. One hundred dollars and a Centificate of Merit will be given for the best unpublished contribution on Gastroenterology or allied subjects. Certificates will also be awarded to those physicians whose contributions are deemed worthy.

Contestants residing in the United States must be members of the American Medical Association. Those residing in foreign countries must be members of a similar organization in their own country. The wining contribution will be selected by a board of impar-

tial judges and the award is to be made at the Annual Convention Banquet of the National Gastroenterological Association in October of 1950.

Certificates awarded to other physicians will be mailed to them. The decision of the judges will be final. The Association reserves the exclusive right of publishing the winning contribution, and those receiving Certificates of Merit, in its Official Publication, *The Review of Gastroenterology*.

All entries for the 1950 prize should be limited to 5,000 words, be typewritten in English, prepared in manuscript form, submitted in five copies accompanied by an entry letter, and must be received not later than 1 June 1950. Entries should be addressed to the National Gastroenterological Association, 1819 Broadway, New York 23, N.Y.

INTERNATIONAL SOCIETY OF HÆMATOLOGY CAMBRIDGE CONGRESS

Programme:—It has been provisionally decided that the programme will be arranged under the following main headings:—

Tuesday, 22nd August—The Therapy of Anæmias; Hypersplenism.

Wednesday, 23rd August—Leukaemia; Review of Therapy of Leukaemia.

Thursday, 24th August—Physiology and Pathology of Coagulation.

Friday, 25th August—Immuno-haematology.

Each session will be opened by one or two invited speakers of international repute. Other contributions will be limited to 10 minutes' duration. Ample time will be allowed for discussion. Space will be available for scientific demonstrations which may, if desired, be independent of any paper read at the meeting.

Any who wish to read a paper within the scope of the general headings outlined above or to give a scientific demonstration should submit their requests forthwith to the Congress Secretary (Dr. M. Hynes) in order that the Programme Committee may make their selections. The language in which the paper is to be given should be stated. It should be noted that the programme will be co-ordinated and planned by the Programme Committee and that the submission of a request does not guarantee acceptance. Preference will be given to new work rather than work previously published.

Accepted speakers will be required to forward a precis of their papers to the Congress Secretary in advance, so that translations in English, French and Spanish may be included in the official programme.

Attendance dues—A Congress fee of £1 will be payable as attendance dues by all who come to the Congress. Attendance dues will be used to meet the expenses of the meeting; separate charges will be made for the dinner, excursions and other entertainments. These will be payable on arrival.

Membership:—New members will be elected at the 1950 Congress. Indian applicants should send their names to Dr. C. R. Das Gupta, School of Tropical Medicine, Calcutta, with a duplicate to the Secretary-Treasurer, Dr. Martin Hynes, Department of Medicine, University of Cambridge, England. The annual subscription payable by members is $3·00 or its legal equivalent in the currency of the country of the Secretaries General. Any funds available after paying administrative expenses are used to support the travel expenses of invited speakers.

CLINICAL CLERKSHIP IN DUBLIN FOR ONE INDIAN DOCTOR

Subject to the final approval of the Minister of Health of Eire, the Joint Board of the Grangegorman Mental Hospital, Dublin, has agreed to appoint one Indian Doctor—possessing qualification registrable in Great Britain and Ireland—to the post of clinical clerk (out of six vacancies).

This hospital controls about 3,000 beds in and around Dublin and the place has been secured through the kindness of Dr. John Dunne—the Chief Resident Superintendent of the Hospital and Professor of Psychiatry in the University of Dublin.

Terms of Appointment—Salary £150 per annum, with board, lodging, laundry and attendance plus £20 p.s. temporary bonus. Tenure for six months from 1st August to 31st January.

This will be a very good opportunity for any doctor wishing to specialise in this branch of medicine. Hony. Secretaries and all Provincial Secretaries, Indian Medical Association will kindly forward the application of any suitable candidate from their area as soon as possible to Dr. S. C. Sen, Hony. General Secretary, I.M.A., Hanging Bridge, Faizbazar, Daryaganj, Delhi. The selected candidate will have to make his own arrangement for passage, passport, etc. at his own cost and be prepared to reach Dublin before 1st August, 1950.

SIXTEENTH INTERNATIONAL CONGRESS OF OPHTHALMOLOGY

The Sixteenth International Congress of Ophthalmology will take place in London from Monday, 17th July to Friday 21st July, 1950. Any qualified medical practitioner may be a member of the Congress. Registration fees are as follows:

Full members—£5. Associate members (ladies or children accompanying members)—£2.

The programme will include lectures, the reading of papers submitted by members, exhibitions, films,

visits to Scotland before the Congress, and to Oxford and Cambridge after the Congress, and a full social programme.

Those taking part include Professor F. H. Ader (Paris), Mme Schiff-Wertheimer (Paris), Mr. Hedley Atkins (London), Prof. L. H. Snyder (Oklahoma), Miss Ida Mann (London) and Prof. A. Franceschatti (Geneva).

Full particulars about the Congress may be obtained from the Secretary-General, International Congress of Ophthalmology, 45 Lincoln's Inn Fields, London W.C. 2.

Travel arrangements may be made with Thos. Cook and Son Ltd.

SAFETY TO MEDICAL RELIEF WORKERS

The following communications No. 1926 and No. 1933 both dated 10th April, '50 were issued by Dr. S. C. Sen, Hony. General Secretary, I.M.A. to Hon'ble Pandit Jawaharlal Nehru, The Prime Minister, Government of India, New Delhi.

Sir—I have been directed by the Working Committee of the Indian Medical Association to inform you, for favour of necessary action, that the following Resolution was passed at its meeting held in Bombay on 2nd April, '50:

"The Working Committee of the Indian Medical Association records with concern the report about firing upon members of medical unit, carrying on medical relief in the border areas to the ailing refugees pouring into West Bengal and expresses its deep sense of resentment at the inability of the Central and State Governments to adequately meet the situation by setting up proper machinery for safeguarding the lives of persons engaged in medical relief, and urges upon the Governments to take necessary steps to prevent recurrence of such incidents."

In this connection, I wish to inform you that the Working Committee sanctioned the expenditure, out of the funds of the Association, a sum of Rs. 10,000 for the relief of medical refugees and their families and a further sum of Rs. 3,014-12 for the distressed refugees in general. These amounts will be spent through Bengal Medical Relief Committee, which has been organized by the Bengal Provincial Branch of this Association.

* * * *

In continuation of my letter No. 1926 dated 10th April, '50, I have to inform you that I have just received a Telegram from the President, Bengal Provincial Branch, Indian Medical Association, which reads as follows:—

"Indian Medical Association's medical student volunteer shot at Joynagar while on medical relief duties died at Calcutta. Medical profession shocked and condemns violation of international conventions. Association urges lodging strongest protest to Pakistan Prime Minister. Adequate measures to stop such outrages must be guaranteed."

BENGAL MEDICAL RELIEF COMMITTEE, I.M.A.

On 12th March 1950, Dr. A. D. Mukharji, President, Bengal Provincial Branch, I.M.A., Dr. A. K. Sen, President, Calcutta Branch and Dr. P. K. Guha, Vice-President, Bengal Provincial Branch surveyed the area on the border of Bongaon and Ranaghat in West Bengal where refugees from Eastern Pakistan had been pouring in daily. Following an informal discussion on the subject it was decided at a meeting of the Bengal Provincial Council held on 21-3-50 to form the Bengal Medical Relief Committee to carry on relief operations in West Bengal and its neighbourhood. Dr. A. D. Mukharji was elected Chairman of this Committee and Dr. P. K. Chatterjee and Dr. R. Sinha, Secretary and Treasurer respectively. Dr. Debesh Mukharjee was placed in charge of operations and Drs. Jyotirmoy Majumdar, Manash Ray Chaudhury, Amar Pal, Debal Sen, Salil Datta and Souren Sen Gupta in charge of different sections of the medical relief operations.

The Committee's first undertaking was to start camps at Bangaon Railway station and Jayantipur (the border zone off Bangaon) on 22-3-50. This was followed by opening of camps at Banpur off Ranaghat and Joynagar (on Ranaghat and Banpur border) on 26-3-50. Three Medical Units started operating at Bongaon and Jayantipur. Each unit consisted of one doctor, 4 senior medical students and 2 junior medical students.

A 14-bedded camp hospital including accommodation for 3 infectious cases was started on the Bongaon Rly. station platform. On an average, 200 patients received medical attendance at the Out-patients Dept. every day and so far about 100 patients have been treated as in-patients besides 12 cases of confinement. A number of infectious cases had to be referred to the Govt. A. G. Hospital at Bongaon. With improvement in the situation it was decided to close the camp at Jayantipur from 9-4-50.

At Banpur and Joynagar, relief operations were started in co-operation with the City College (Calcutta) Commerce Dept. units. On 15-4-50 a 12-bedded camp hospital including 3 beds for infectious cases was started at Banpur. The re-organised out-door dept. on the Banpur Rly. station platform has a daily average attendance of 100 cases and 2 medical units are now working here. The I.M.A. Camp Dispensary at Joynagar was withdrawn on 12-4-50.

The volunteer doctors and students forming the B.M.R.C. (of I.M.A.) units are being chiefly manned by students and doctors of the Calcutta Medical College and the Calcutta National Medical Institute.

The President, I.M.A., Bengal Provincial Branch discussed with H.E. Dr. K. N. Katju, the Governor of West Bengal the question of co-ordination of medical relief activities and as a result of discussion, it was decided that the Bengal Branch of the United Council of Relief and Welfare (U.C.R.W.) of which H.E. Dr. Katju is the Chairman, and Dr. Mrs. Phulrenu Guha the Secretary, would appoint a medical sub-committee.

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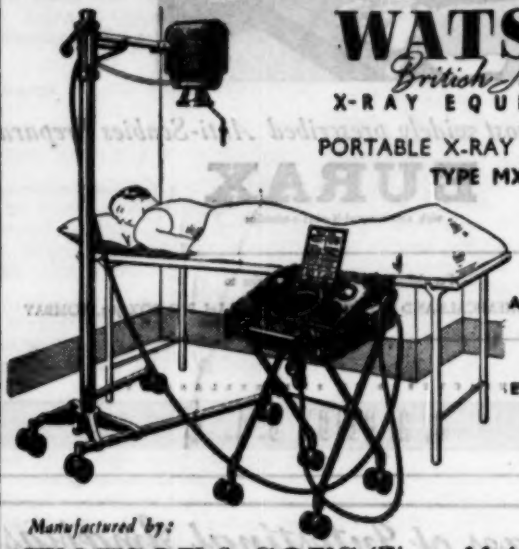

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The Medical Sub-Committee of the U.C.R.W., formed since, elected a Medical Working Committee with Dr. B. C. Das Gupta, Director of Health Services, Government of West Bengal, as the Chairman, and Dr. P. K. Chatterjee, Jt. Hony. Secretary, Bengal Provincial Branch of the I.M.A. and an officer of the Medical Directorate of the Govt. of West Bengal as Joint Hony. Secretaries. Dr. A. D. Mukharji represents the I.M.A. in the Working Committee of the Medical Sub-Committee of the U.C.R.W.

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CORRESPONDENCE

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PROS AND CONS OF AMALGAMATION

Sir,—The All-India Medical Licentiates' Association, at its Conference held in Bombay in 1947 voted solidly for amalgamation with the Indian Medical Association. A referendum on the subject was taken by the General Secretary but as was expected hardly 1/5 of the members responded, but with only a dozen or two dissentients. According to the rules of the A.I.M.L.A. a change in the Constitution requires 3/4 majority of votes. Hence, in the following Conference held at Calcutta, a change to 2/3 majority was sought for. But, this resolution was lost by about 14 votes (for the required 3/4 majority). This is the position as it stands to-day and the question is again coming up before the Vellore Conference.

It is important to know the views of those who object to amalgamation. It must be admitted that they are equally sincere in their convictions. They are not against the amalgamation but assert (1) that the time is not yet ripe for it; (2) that the I.M.A. is not supporting the cause of the Licentiates as seriously as the A.I.M.L.A., especially regarding the I.M.C. Act amendment and the problems of military and civil medical services; (3) that the few top-rankers in the profession have completely monopolised the I.M.A. neglecting the interests of the rank and file and as such feel that it would be in the interest of the general medical profession to change over into a General Practitioners' Association so as to have a healthy rivalry with the I.M.A. If at all there should be an amalgamation there is also a suggestion that the class should have a guaranteed representation in the I.M.A. both at the Centre as well as in branches for a stipulated period. This does not mean a craving of office hunters, but a genuine desire to be present in all executive bodies so as to enable them to put forward and press the claims of the class. (4) Lastly, the general feeling is to have a basic minimum subscription—of membership of the I.M.A.—and that the autonomy of the branches to raise subscriptions for specific needs like buildings, reading-room, library, sport and the like, should not come in the way of any one who contents himself to be only an ordinary member of the branch, contributing the fixed basic subscription.

No doubt, the A.I.M.L.A. knows very well where the shoe pinches the class and has been doing intense propaganda in these matters. But it should be realised that once we are in the I.M.A. it is *our* bounden duty to continue our work there; we should not expect our graduate colleagues to do the work for us. As already suggested, we should have a Party in the Central Council and the Working Committee which should carry on the work as will be found necessary in the interest of the class. The party should meet once a year during the annual Conference and chalk out its plan. It should have its own chairman, chief whip and representatives in the provincial branches. The chief whip should be given allowances for maintaining a small office. If deemed necessary and expedient, the I.M.A. may establish a convention for a few years after amalgamation of reserving a certain proportion of seats of office-bearers to those Licentiates willing to take them up.

To those who shape the destinies of the I.M.A. to-day, dubbed rightly or wrongly as "monopolists" and "king makers" by an increasingly strong but silent minority section therein, I would appeal to face facts, and act before it is too late. They should keep a watchful eye on the interest of the profession as a whole. The move for a parallel organisation is gaining ground, slowly and steadily, and it is the duty of those responsible for the management of the I.M.A. to counteract such a move not by indifference, but by a frank and friendly gesture—which will satisfy the rank and file of the profession. A rift at the present stage of our development should be avoided at all costs. I am confident that this humble and sincere suggestion will act as an eyeopener and set the I.M.A. bosses athinking as to its future working.

As far as the A.I.M.L.A. is concerned I would again most earnestly appeal not to be carried away by emotions and a desire for personal gains. We have made the supreme sacrifice of asking for the abolition of the class. We have given our best to the Government, to the country. That should be our greatest satisfaction and solace. Let us not join the I.M.A. with expectations of a few coins or crumbs, but we shall amalgamate with the only noble ideal of having a united medical brotherhood, to serve our profession, our people and our Government.—I am etc.

U. B. NARAYAN RAO.

Bombay, 4-2-50.

PLEA FOR ONE DEGREE FOR ALL MEDICAL MEN IN THE INDIAN UNION

Sir,—With a view to put in a plea for one degree for all medical men in the Indian Union I would like you to publish this letter so that the medical profession, the University authorities, other examining bodies and the Medical Council of India may consider this proposal.

Now that we have one uniform minimum standard of medical education in India, we should seriously consider the advisability of having only one degree, *viz.*, M.D. for all medical men in this country.

In the past we have followed the British tradition and used multiple degrees, diplomas, etc. In U.K., because of their history, there are various examining bodies with traditions of centuries and royal charters, entitled to give various degrees and diplomas. We need not continue that practice; there is no need for us to do that.

We can much more appropriately adopt the practices obtaining in America and the continent of Europe of having only one degree *viz.*, M.D. for all medical men. This appears to me to be the only rational procedure.

There cannot be any objection on the part of the Universities to give the M.D. degree instead of M.B.,

or M.B., B.S., or M.B., Ch.B., etc. to medical men. After all, the medical course is the longest course in the University curriculum—at least 5 years after the passing of the Intermediate Examination in Science, and in some cases even longer. With the introduction of compulsory internships, the period will be longer still. Students, in other branches, get either Ph.D. or D.Sc. degrees within this period.

The Universities should not object to the granting of M.D. degrees to all medical men on the ground of loss of extra income, if any.

Regarding diplomas given for various specialities, there should be one minimum standard, if possible with one examining body in each speciality, for the whole country, as in U.S.A. or Canada. People possessing such diplomas should, however, not be permitted to use any extra letters after their names, and to create further confusion. They should not also be allowed to advertise that they are Specialists in the way it is done at present. That some doctors are specialists in some branches would be known to their colleagues. When applying for posts, their applications would have copies of their diplomas and relevant testimonials.

I feel it is high time that the question of medical degrees and diplomas is put on a rational basis and authorities concerned will take appropriate action in the matter.—I am etc.

S. C. Sen.

1. Barakhamba Road,
New Delhi, 10-2-50.

HOLIDAY TOUR FOR DOCTORS

Sir,—From my own personal experience both in this country and in India, I know that there are many Indian and English Doctors who would like to travel—the former in England and the latter in India—for a short holiday tour.

The chief obstacle is the cost as the return air fare is about £230 to which must be added a similar amount for six weeks' expenses.

To overcome this difficulty, I am bringing a party of 24 English Doctors to India by charter 'plane, for a return fare of £150 each. We shall be leaving London on the 23rd September and returning from India on the 4th November.

The 'plane will be available to bringing an equal number of Indian Doctors to this country for the same return fare of £150 each, the dates of departure varying in each case by two days from the above dates.

I shall be very pleased to hear, as soon as possible, from any medical men who would like to take advantage of this opportunity, or from any Doctor who would undertake to bring a complete party of 24. *All arrangements have to be completed by 1st June.*

In regard to the proposed tour of this country, I would be delighted to assist in drawing up a suitable programme, and to give any advice required concerning accommodation.—I am, etc.

R. U. Hingorani.

128, Harley Street,
London, W.1.
24th March, 1950.

CURRENT MEDICAL LITERATURE

Ascites and Hepatic Cirrhosis

The accumulation of ascitic fluid in quantities necessitating repeated paracentesis is one of the most distressing features of hepatic cirrhosis. Several factors are involved in this disturbance of the normal balance between the fluid compartments of the blood and of the peritoneal cavity, and much can be done to coorrect it, apart from direct mechanical removal of the accumulated fluid.

Portal hypertension has for long been recognised as a common sequel of hepatic cirrhosis, which favours the formation of ascitic fluid by increasing the filtration pressure in the splanchnic capillaries. In the early stages of of cirrhosis compression of the liver sinusoids by the fat-laden liver cells probably plays an important part in the genesis of portal hypertension, and relief of this compression by the action of lipotropic dietary factors may account for some of the clinical improvement obtained by dietetic means. At a later stage the disturbances of intrahepatic circulation are of a more permanent kind ((McIndoe—*Arch. Path.* Chicago, **5**:23, 1928) and unlikely to be influenced by simple dietary measures. If in such a case, owing to haematemesis or other complications, reduction of portal hypertension seems essential, recourse must be had to some form of short-circuit operation such as anastomosis of the portal to the left renal vein (Learmouth and Macpherson—*Lancet*, **2**:882, 1948). Owing partly to impairment of appetite, partly to loss of protein in the ascitic fluid, and partly to impaired protein synthesis by the damaged liver, patients with hepatic cirrhosis often show gross disturbances of their serum-protein. A pronounced fall in the serum-albumen, with or without a rise in globulin, is the most usuaul finding and is associated with a considerable fall in the osmotic pressure of the total serum-protein. This too favours the formation of ascitic fluid, and several attempts have been made to influence it by giving concentrated human serum-albumin intravenously. The results have been almost uniformly disappointing, and both Patek and others (*J. Clin.* Invest., **27**:135, 1948) and Faloon and others (*Ibid*, **28**:583, 1949) conclude that ascites is not primarily determined by the plasma-albumin level but by alterations in water and salt metabolism. Disturbance of water metabolism has recently been noted (Shay and others—Gastroenterol, **4**:257, 1945) in infective hepatitis, and recovery is often signalled by a diuresis. Ralli and others (*J. Clin. Invet.*, **24**:316, 1945) have shown that this retention of water in hepatitis is associated with an excessive excretion in the urine of an antidiuretic agent which returns to normal when the patient recovers. The usually accepted explanation is that the liver normally inactivates the antidiuretic agent, and that in hepatitis and cirrhosis this inactivatioin may become impaired. Farnsworth and Krakusin (*J. Lab. Clin. Med.*, **24**:316, 1945), moreover, have found that cirrhosis with ascites is associated with a well-marked retention of sodlum and water despite normal renal function, which implies that the kidney is behaving as though the body were dehydrated. This too suggests that an antidiuretic factor is active.

With the mechanism of ascites formation so far elucidated it is not surprising to find that severe restriiction of dietary sodium may result in a dramatic reabsorption of ascitic fluid. Layne and Schemm (*Gastroenterol.*, **9**:705, 1947), and Eisen-

menger and others (*J. Lab. Clin., Med.*, **34**:1029 ,1949) have reported on two small series of cases in which severe salt restriction was followed by striking clinical improvement. In the cases of Eisenmenger *et al* the critical level of sodium intake was 1·0-1·2 g. per day. With the intake restricted to this level for three months patients formerly requiring repeated paracentesis not only lost their ascites but could tolerate more or less normal quantitis of salt. The serum-proteins in these cases also returned to or towards normal, partly because there was no longer a loss of protein into the peritoneal cavity, and partly because of improved protein synthesis by the liver. It seems, therefore, that, in many cases of ascites resulting from cirrhosis, sodium rtention by the kidney, acting under the influence of an excess of an antidiuretic substance, is a major factor. Since in ascites, as in oedema, water follows salt, restriction of sodium intake restricts the retention of water. The actual reduction of already formed ascites, however, implies more than this. A daily intake of only 1 g. of sodium chloride leads to a slight negative sodium balance which after some weeks or months must reach a point where the production by the pituitary of the antidiuretic hormone is reduced. At this point a sudden rise in the urinary excretion of salt will occur, as Eisenmenger *et al.* noticed in their patients, and it is at this stage that reabsorption of existing ascitic fluid may be expected.—*Lancet*, **2**:955, 1949.

Spontenbous Pneumothorax

Myerson (*New England J. Med.*, **288**:461, 1948) writes that this is a study of 100 consecutive unselected cases of spontaneous pneumothorax from the Boston City Hospital seen between 1934 and 1943. The diagnosis was made on the history, and x-ray findings.

The patients are divided into two groups. In the first numbering 64, underlying pulmonary disease was known to be present; the second consisted of 36 apparntly healthy persons. The history and physical findings in the two groups are essentially the same. Eighty per cent of the cases occurred without excessive activity, while 20 per cent followed unusual exertion. Chest pain always occurred, localized to the involved side. Dyspnœa was also a constant finding, being more subjective than objective, however. Cough and fever were common. Physical signs varied with the degree of collapse; wiith 40 per cent pneumothorax the classical signs were present.

Of the 64 patients witih underlying disease, 38 had tuberculosis, 5 emphysema, 5 bronchiectasis, 4 poost-pneumonic emphysema, 3 bronchial asthma, 3 lung abscess, 2 metastatic carcinoma, 2 pneumonia, 1 bronchogenic carcinoma, and 1 pulmonary infarct. The average age for this group was forty-six years. The occurrence of spontaneous pneumothorax in patients over forty-five years should make one suspect underlying pulmonoary disease.

Of the 36 apparently normal persons, 83 per cent were males. In 3 patients the condition was recurrent. The average age of this group was twenty-seven years. In only one instance is pulmonary tuberculosis known to have developed.

Angiocardiography in Congenital Heart Disease

Colley and others (*Radiology*, **52**:329, 1949) write that with the advent of surgical therapy for congenital heart disease of the cyanotic type, the necessity for exact diagnosis has become more important.

Angiocardiography is a valuable technic in establishing an accurate diagnosis, when employed in conjunction with clinical, laboratory, and physiological studies, such a catheterization of the heart.

The authors have used this technic in 75 patients with congenital cyanotic heart disease; 140 injections have been made without serious reaction.

Nine patients have been selected for detailed consideration in order to emphasize the advantages and shortcomings of the method in preoperative evaluation.

Seven patients had the tetralogy of Fallot and two had a truncus arteriosus. All were subjected to operation, and in one instance post mortem studies were available.

An overriding aorta could be demonstrated in all instances, as well as the position of the descending aorta.

An interventricular septal defect may sometimes be directly demonstrated.

Direct visualization of the pulmonary conus is so difficult as to be untrustworthy, but strong presumptive evidence of stenosis may often be obtained. It is not possible by angiocardiography alone to distinguish pulmonary atresia from a high degree of stenosis.

The presence and character of the pulmonary arteries may be reliably determined. Failure to demonstrate the proximal portions of the pulmonary artery, however, does not rule out the possibility of a successful anastomosis.

Prevention of Recurrence in Peptic Ulcer

Althausen (*Ann. Int. Med.*, **30**:544, 1949) writes that dissatisfaction with the present handling of the problem of peptic ulcer should be directed not so much at the results of medical treatment of the current ulcer as at the failure to prevent recurrences.

Data are cited which indicate that ulcer recurrences are so frequent in all types of medical practice that with some exceptions peptic ulcer should be considered an incurable disease which must be kept under control by appropriate measures.

Recurrences of peptic ulcer are associated with four main 'inciting' causes: Physical and mental fatigue, emotional disturbances, dietary indiscretions, and respiratory infections.

Prevention of ulcecr recurrences should start with proper diagnosis and adequate medical treatment. Failure of physicians to insist on a strict and sustained regime decreases the percentage of successful cases and results in early recurrences of peptic ulcer which eventually lead to serious complications. This applies particularly to patients with low sensitivity to pain.

It is the duty of the physician to inform patients with peptic ulcer of the true nature and probable course of their disease and to convince them of the necessity of long continued preventive measures.

The preventive measures proper consist of:

(*a*) Elimination of overwork and adjustment of occupational predicaments.

(*b*) Attention to psychosomatic factors.

(*c*) Precautioons in regard to diet and so-called 'stimulants.'

(*d*) Prophylaxis and therapy of respiratory infections.

(*e*) Institution of a protective regime during periods of unavoidable stress.

(*f*) Prompt treatment of recurrences of epigastric distress.

The surgical operatioins of subtotal gastrectomy and vagotomy are discussed from the point of view of prevention of ulcer recurrences and of indications for surgical intervention.

Deoxycortone in Rheumatoid Arthritis

The demonstration by Hench that rheumatoid arthritis is dramatically improved by 'Cortisone' has led to the expected flow of new work. The beneficial results obtained with anterior pituitary adrenocorticotropic hormone (A.C.T.H.) by Thorn and Bayles (*Practitioner*, **163**:365, 1949) were discussed in the columns of *Lancet*, 1949, Oct. 22, pp. 758. Boland and Headley (*J.A.M.A.*, **141**:301, 1949) have lately confirmed the good effects of cortisone, and they suggest that it may be possible to treat less severe cases of rheumatoid arthritis with smaller doses than those used by the Mayo Clinic workers, though much further work is required before the dosage is properly worked out.

Lewin and Wassen have found that the intramuscular injection of 5 mg. deoxycortone acetate, followed in 5 minutes by 1 g. of ascorbic acid intravenously, produces a nearly complete, though temporary, relief of rheumatic symptoms. The effect begins in 5 minutes and reaches its maximum in 15-30 minutes, usually persisting for 2-6 hours, though occasionally for 24 hours or longer: repeated treatments have apparently longer-lasting effects. Benefit has also been obtained in one case by implanting a 100 mg. tablet df deoxycortone subcutaneously and thereafter giving injectioins of 0·5 g. of ascorbic acid every 6-8 hours. If these results are confirmed, the discovery will be a great step forward; for deoxycortone is manufactured synthetically and is relatively plentiful, whereas cortisone and A.C.T.H. are both rare and likely to remain so.

From the experimental point of view the beneficial effect of deoxycortone is unexpected. Selye, in his previous work on the 'alarm reaction," had found that rats treated over long periods with deoxycortone often developed an arthritis, and his latest paper (*Brit. M. J.*, **2**:1129, 1949) carries this a stage further. By injecting formaldehyde near the points of rats he regularly produced an arthritis, and the effects of treatment with deoxycortone and with cortisone on this arthritis were diametrically opposed. If an adrenalectomised rat had been given deoxycortone for a period before the injection of formaldehyde, the arthritis was more severe than that in the control animal, whereas simultaneous administration of cortisone with the deoxycortone prevented the development of any significant arthritis. In the intact rat, the injection of A.C.T.H. 25 minutes before the injection of formaldehyde protected the rat against the development of arthritis, through stimulation of its own adrenals, and adrenal stimulation by means of an "alarm reaction" produced by various means also inhibited the development of an arthritis after the injection of formaldehyde.

The adrenal hormones are known to differ widely in their actions in other fields: thus deoxycortone has a very powerful rgulating activity on salt metabolism, whereas cortisone has little effect on salt but much on sugar. It is therefore not surprising that they have different effects on such conditions as arthritis. Spies and Stone (*Lancet*, **2**:890, 1949) have suggested a test for cortisone-like on the administration of the substance under test; they found that, in contrast to A.C.T.H., deoxycortone had no effect at all on eosinophil levels, suggesting that it has therefore no cortisone-like activity. Lewin and Wassen seem to have altered its action profoundly by giving it in conjunction with ascorbic acid, but much more work will be needed before their clinical observations can be reconciled with the experimental results of Selye.—*Lancet*, **2**:998, 1949.

Vitamin B_{12} by Mouth in Pernicious and Nutritional Macrocytic Anaemia and Sprue

Spies and others (*Lancet*, **2**:454, 1949) give in the following lines the summary of their observations:

The minimum, maximum, and optimum dose of vitamin B_{12} varies from patient to patient and from time to time in the same patient; therefore no routine of treatment can be followed satisfactorily. The best method will have to be found for each case. As soon as possible, the patient should have a diet that supplies adequate calories and a liberal amount of protein of high biological value.

Vitamin B_{12} is more efficacious per unit of weight when given parenterally than when given by mouth, as is shown in cases 2 and 7. Irrespective of age or any other condition, vitamin B_{12} should always be given parenterally when the patient has severe cardiac failure, severe neural degeneration, or a severe alimentary disturbance. In most extremely ill patients the initial treatment at least should be parenteral. Nevertheless this report shows that vitamin B_{12} given by mouth in adequate amounts is often efficacious. It must be recognised, however, that some patients have macrocytic anæmia with megaloblastic arrest of the bone-marrow which does not respond to liver extract, folic acid, or vitamin B_{12} whether given parenterally or by mouth. There were several such patients in the present series. On the whole, most patients respond slowly when vitamin B_{12} is given by mouth in an amount 30-60 times by weight that required for parenteral therapy.

Parenteral administration produces more rapid improvement, ensures that altered gastro-intestinal function cannot block absorption, and can always be supervised by a physician, thus eliminating the possibility of interference where the patient has developed an aversion to injections. Moreover, though they have not seen a patient who is allergic to vitamin B_{12} or the refined concentrates of it, almost certainly such a patient will eventually be found. Some patients acquire a sensitivity to parenteral liver extract so that injections produce reactions varying in intensity from mild to severe. In such cases oral administration is often effective, so vitamin B_{12} by mouth may be useful where a patient reacts severely to injections of the substance.

Use of Nitrogen Mustard in Hodgkin's Disease

Meyer and Overmiller (*Ann. Int. Med.*, **30**:381, 1949) write that two cases of Hodgkin's disease, treated with nitrogen mustard, methyl-bis (beta-chlorœthylamine hydrochloride), have responded favorably at a period when further rœntgen ray therapy was not considered advisable. The two living cases are pursuing gainful lives 10 months and eight months after initial methyl-bis therapy. The case which has been followed for 10 months is now receiving roentgen ray therapy to an area of local recurrence.

Of the three cases of lymphosarcoma, treated after further roentgen ray therapy was not deemed advisable, one is leading a useful home life eight months after initial therapy; one received marked subjective and objective relief but died in her sleep one month after the last course of therapy, and the third experienced considerable relief from pain, disappearance of peripheral lymphadenopathy, but no relief from dysphagia or vomiting. Autopsy revealed metastatic tumor nodules in the liver and kidneys.

The position which methyl-bis (beta-chloroethyl amine hydrochloride will take in the treatment of Hodgkin's disease and lymphosarcoma is as yet, undetermined. However, the fact that it is effective palliatively, in certain instances of these diseases, is apparent.

Complete Heart Block Associated with Amoebic Hepatitis

Rawkins and Konstam (*Lancet*, **2**:152, 1949) report that a well-nourished man with amœbic hepatitis but with no recent dysentery had complete heart-block, which appeared to respond to emetine. In three previously reported cases of amœbiasis with auriculoventricular dissociation the patients had diarrhœa, thus introducing other possible factors affecting the conducting tissues.

Hematologic Study of Leprosy Patients treated with Diasone

Fernandez and others (*Internat. J. Leprosy*, **16**:319, 1948, Ref. *Trop. Dis. Bull.*, **46**:480, 1949) write that this is a careful study of the blood changes that follow the use of diasone in Leprosy. Anæmia and depression were noted in 89 per cent. of cases, and most marked when the daily dose exceeded one gramme. They may appear during the first few weeks of treatment and subside on withdrawal of the drug. The red cells only exceptionally decrease by more than two million and the hæmaglobin to under 50 per cent.; even the worst cases respond favourably to withdrawal of the drug and the use of iron, liver and vitamin B complex. Severe leucopenia was not met with and there was an increase of reticulocytes proportional to the severity of the anæmia; this indicates that the bone marrow is unharmed and the anæmia is of the regenerative type. Urobilin—but not bile pigment—is found in the urine and red-cell resistance is decreased; these indicate a toxic hæmolytic effect. Indirect bilirubin determination was almost always negative. The anæmia is thus benign and rarely requires interruption of the treatment, especially if the daily dosage is restricted to one gramme.

Intradermal Mecholyl Test for Anidrosis; a Diagnostic Aid in Leprosy

Arnold (*Internat. J. Leprosy*, **16**:335, 1948, Ref. *Tropical Dis. Bull.*, **46**:478, 1949) writes that the action of mecholyl chloride (stated to be pharmacologically "virtually identical with acetylcholine") as a test for loss of sweating power in leprosy in place of pilocarpine is described in this paper. After a brief description of the physiology of sweating, earlier reports on the use of mecholyl are summarized and the conclusion is arrived at that denervation of sweat glands by leprous neuritis is the cause of anidrosis usually affecting the most distal portions of the post-ganglionic nerve fibres. In carrying out the test, equal areas of leprous and adjoining healthy skin are painted with Minor's solution, consisting of crystalline iodine 2 grammes, castor oil 10 c.c. made up to 100 c.c. with absolute alcohol, which dries rapidly. Then 0.05 to 0.1 c.c. 1 per cent. aqueous solution of mecholyl chloride is injected intradermally at the border of the lesion to produce a weal partly inside and partly outside the lesion: the whole area is quickly and lightly dusted with powdered starch from an atomizer. Within a few seconds sweat droplets appear on the functionally intact skin, which becomes black due to the iodine and starch combination. The response is negative when no sweat drops appear within the area tested. Quite exceptionally the reaction is doubtful if no more than 6 to 8 pinpoint-sized droplets can be seen on the area tested. In facial lesions it is doubtful if this test can be relied on as in the oval, hypopigmented, facial macules of achromia parasitica a sweat response is liable to be absent and not one of a series of these cases had developed leprosy. Macular or tuberculoid annular lesions showed the area of anhydrosis to correspond exactly with the area of involvment and demonstrable anæsthesia and the reaction is clear cut and evident even in dark-skinned patients.

Treatment of Kala-azar with Hydroxystilbamidine

Sen Gupta (*Lancet*, **2**:97, 1949) in reporting on six cases of Kala-azar treated with hydroxystibamidine writes that the patients were all Indians, aged 10-45 years; five were males and one female. The illness had lasted from 1½ months to about a year in the previously untreated cases, and 3 years in the resistant case. The diagnosis was confirmed in each instance by Napier's aldehyde test, the complement-fixation test for kala-azar carried out according to a technique described by the author and discovery of the parasite in spleen, sternum, or tibia puncture smear. Anæmia and leucopenia were present in every case, and in one the hæmoglobin value was only 4.8 g. per 100 ml. Severe asthenia and diarrhœa, bronchitis, and œdema were the chief complications noted, and helminthiasis was present in half the cases.

Hydroxystilbamidine was the only drug used for the specific treatment of kala-azar. The complications were treated symptomatically, and the treatment of helminthiasis was postponed till the convalescence from kala-azar.

The dosage scheme was based on the fact that the biggest dose of hydroxystilbamidine tolerated by laboratory animals was similar to that of stilbamidine (Fulton, 1944); 1.5 mg. of the B-hydroxyethanesulphonate (which corresponds to 1 mg. of the base) of hydroxystilbamidine per lb. of body-weight—i.e., 3.3 mg. per kg.—was the biggest single dose used. In a few instances the maximal dose was reached after one or two smaller doss to test the patient's tolerance. The total number of injections varied from ten to twenty-six. Usually ten injections were given on consecutive or alternate days, and this course of ten injections was repeated after 7-10 days. The total dosage aimed at was about 3 g. per 100 lb. of body-weight in twenty injections. Actually the average relative total dosage per 100 lb. of body-weight for the six cases was 2.72 g., because of the variation in the number of doses given.

Hydroxystilbamidine was given intramuscularly in 10 per cent. solution to five patients. The intramuscular injections were painful. Two patients, including one who had had the first course of injections intramuscularly, had intravenous injections. The drug was dissolved in 25 ml. of 25 per cent. glucose solution, and the injections were given very slowly. No untoward reactions were encountered, and there was no thrombophlebitis in any of these cases.

The criteria for immediate clinical success are cessation of fever, improvement of general health and gain in weight, shrinkage of the spleen, pronounced improvement in the leucocyte-count, and a rise in the hæmoglobin level. It will be seen from the notes of the above six cases that these

criteria were fulfilled in all. As is usual in the treatment of kala-azar with aromatic diamidines, the fever subsided in most instances within a few days of completion of the first ten injections. Three patients were in good health 5 months after completion of specific treatment; very probably they have been permanently cured. The other three patients were free from kala-azar 4½, 3½, and 3 months after treatment.

From the results in these six cases it may be concluded that hydroxystilbamidine has a well-marked curative action in human leishmaniasis. Further trials will provide adequate data for comparison with the action of the older pentavalent antimonials and stilbamidine.

Acute Mastitis

Walsh (*Lancet*, **2**:635, 1949) from experiences in the treatment of 153 cases of acute mastitis writes:

The *Staphylococcus aureus* was the commonest causative organism.

Milk stagnation was one of the most important factors in the aetiology.

At the earliest sign of possible acute inflammation in a breast, a course of systemic penicillin should be begun.

If there is any induration in the breast immediate incision should be practised.

A new method of incision is described which gives an excellent cosmetic result.

Acute mastitis is no bar to the continuance of breast-feeding.

Observing that the majority of neglected abscesses tend to point at the areolar margin, or close to it, the author tried an incision about 1 cm. long placed exactly along the areolar margin. To avoid duct damage this incision is made through skin and superficial fascia only, and through it a long pair of narrow-bladed artery forceps is thrust into the abscess cavity. By palpating on to the instrument with the left hand laid flat on the breast all indurated areas and loculi can be entered and drained. As much as possible of the pus is expressed (there is no danger of disseminating infection if preoperative penicillin has been given). A small rubber tissue drain is inserted for twenty-four hours, a dry dressing is applied, and the breast so bandaged as to keep it well supported. Systemic penicillin, 100,000 units eight-hourly is given, the first dose being administered with the preoperative atropine. Lady Florey has shown that this dosage of penicillin is adequate to maintain a bacteriostatic concentration in any wound exudate.

In this series 31 abscesses were treated in this fashion, and in them the average time from incision to complete healing was 6.9 days. Usually the wound was dry on the fourth day, when administration of penicillin was stopped. In all these cases emphasis was laid on manual expression of all milk in the infected breast, as previously described. In none of the 31 did a secondary abscess develop. From a cosmetic point of view this incision is very satisfactory, the scar being almost invisible after a couple of weeks. So satisfactory has the author found it that he would recommend its adoption for any abscess near to the areola. For the few cases in which the abscess is near the periphery or in the axillary tail, the same technique can be followed through a small tenotomy incision over the point of maximum swelling.

Pain in Phantom Limbs

A phantom limb is a natural consequence of amputation and is experienced by the majority of patients; a painful phantom, however, is a rarer condition. In Henderson and Smyth's (*J. Neurol. Neurosurg. Psychiat.*, **11**:88, 1948) series of 300 patients of military age only 4 per cent had painful phatoms, though others have reported a higher incidence than this, possibly on account of the age and other special features of patients whom they were studying. Henderson and Smyth concluded from their detailed study of the symptoms of phantom limbs that various epiphenomena may occur; in some patients there was a "neuroma sensation," which resulted from the mechanical stimulation of neuromata in the stump and consisted of instantaneous sensations of pins and needles referred to the peripheral distribution of the divided nerves. In a minority of cases only there were complaints of pain, distorted attitudes of the phantom, and involuntary spasmodic movements, all of which the authors considered were of psychological origin. This view of the cause of pain in phantom limbs is not universally held, and the pain is often considered to be of peripheral origin.

Many methods of relieving the pain have been tried, including local excisions of the neuroma, sympathectomy, posterior rhizotomy, chordotomy (Falconer and Lindsay—*Brit. J. Surg.*, **33**:301, 1945) and even excision of areas of the parietal cortex. In a preliminary report which was published in *Brit. M.J.*, **1**:1924, 1949 Dr. W. Ritchie Russel suggested a much simpler procedure than these operations; it has been successful in seven cases, several of them of long standing. The method was introduced for three reasons: first, the observation that in the normal limb nerve endings in the skin are rendered insensitive by occupations which entail repeated minor traumata or prolonged firm pressure on the skin; secondly that conduction in a mixed nerve is easily interrupted by repeated pressure without the production of any spontaneous pain; and, thirdly, on the assumption that regenerating nerve fibres in an amputation stump are likely to be no less vulnerable to minor trauma or pressure than normal nerves and nerve endings. The practical application of this reasoning was to percuss the neuromata into a state of "chronic concussion." As this can be a somewhat painful process at the onset, a local anaesthetic may be injected into the stump or a sphygmomanometer cuff may be applied to the stump and inflated to over 200 mm. Hg, which renders the tender scars and neuromata less sensitive after two to three minutes. Percussion is carried out by gentle hammering with a small wooden mallet or mechanical vibrator and continued with increasing vigour for about ten minutes. It is advisable to use a wooden applicator to transmit the blows of the mallet to the neuromata. At first treatment must be repeated at least twice a day, but in some cases once daily was sufficient; as Dr. Ritchie Russell puts it, "The patient soon learns to knock away his phantom pain whenever it becomes troublesome."

This is a refreshingly simple method conceived on sound physiological principles if the major hypothesis is accepted that pain in phantom limbs is of peripheral origin. If the method should prove successful in large number of cases it would serve as additional proof for this hypothesis, though it would still be difficult to explain the failure in some cases of division of sensory nerves and posterior roots to relieve the painful phantom.—*Brit. M. J.*, **1**:1132, 1949.

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ASSOCIATION NOTES

FIRST C. P. & BERAR MEDICAL CONFERENCE, JUBBULPORE—The first C. P. & Berar Provincial Medical Conference 1949 was held at Jubbulpore on 25th, 26th, and 27th October, 1949.

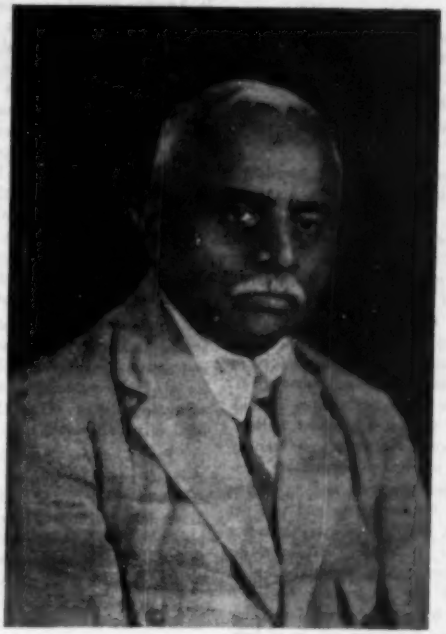
The Welcome Address was read by Dr. George D'Silva, the Chairman of the Reception Committee. This was followed by the inauguration of the Conference by Dr. N. B. Khare after which the President Capt. B. R. Chandorkar of Nagpur read his address, an excerpt of which is given below:

At the outset let us all pay homage to the memories of Dr. Miss Mascarenhas an energetic popular member of the Jubbulpore Association; Dr. G. R. Mokhariya an eminent private practitioner from Saugor; and Col. A. N. Bose whom our Province owes a good deal, in that, it was he, who realised the long cherished idea of founding a Medical College at Nagpur, for the province.

Turning to the tasks before us, our prime necessity and duty for the present is to clothe, feed, house, and to reach Medical help, to every man, woman and child all over the Province.

Of course, we medical men are not concerned with all these problems of housing, clothing, feeding etc. directly. But since the health scheme depends on those factors we have to refer them here.

On the altar of the Nation we have to put our offerings in the form of service. We can work individually or collectively through our Association with or without the help of the Government and rich philanthropists of the country because money is needed for every activity and it can come only from the above two.



CAPT. B. R. CHANDORKAR, L.M.S., D.T.M.
President, C.P. & Berar Provincial Medical Conference

From the epidemiological report of the League of Nations (1941) we find that we are much below the rung of the ladder in public health. We find in India, that the death rate is 21·8 per 1,000 population; infant mortality 158 per 1,000 against 9·1 and 3·1 in New Zealand, 17·0 and 106 in Japan; expectation of life is 26·91 years in India, 65·4 in New Zealand and 44·82 in Japan; maternal deaths come to 200,000; and preventible diseases and other causes claim a toll of 6,201,434 annually. Malaria tops the list. Hospital beds in U.S.A. are 10·48 per 1,000 population, in England 7·14 and in India 0·24. Causes are many but they can be summed up in two words 'poverty and ignorance', and their consequences are bad housing, bad sanitation, unsafe drinking water supply, poor and unbalanced diet, lack of general health and education.

Maj. General Hance and Col. MacDonald stated in their Report that in order to bring India to the level of Western countries we need at least 260,000 doctors, 770,000 nurses, 69,000 health workers, and 850,000 midwives. Accordingly our C.P. will need 16,000 doctors, 48,000 nurses, 5,500 health workers and 55,000 midwives, while our cadre consists of 19 civil surgeons (9 vacancies), 53 assistant surgeons (10 vacancies), 22 women assistant surgeons, 427 assistant medical officers (62 vacancies). Besides there is a skeleton staff for leprosy, and 5 T.B. specialists, 148 sub-assistant health officers (70 vacancies) are in public health department; and 162 vaidyas who are in the employ of Government and local bodies. These figures speak for themselves; and, our present cadre is a mere patch on the estimated requirements. This amply proves that there is a necessity of comprehensive National Health Service; at the same time we are to take into consideration lack of general education amongst the masses.

In order to work up the Scheme the constitution of the personnel is necessary. Our Association has decided to have graduates and to abolish and if possible to absorb the existing A.M.O. service. The Government of India has accepted the proposal and is acting upon it.

Lt. General Hays suggested that if there is an emergency, National Health Service can be had from the members of any 'Pathy' provided that he is registered; and, has taken the course of training in vaccination, sanitation, and, a course in checking and in detecting epidemics. But I am afraid that even this scheme will be objected to by our friends because they think that all pathies are of quacks. Unless they hold medical degrees they cannot be registered for services; and, hence this scheme also will be out of question.

Therefore, we will have to think of all schemes of medical service to be manned by allopathic doctors. But I found that they are not willing to go to villages, as there are no social amenities available in rural area, education of their children suffers or they are to keep two establishments, which they cannot afford to have with the remuneration they are getting at present.

Unless the following disabilities are solved to their satisfaction, rural medical help is impossible:

(1) They should get dispensary on road side towns and villages where bus or railways service is at hand.

(2) The education of their children is to be arranged to their satisfaction.

(3) Minimum pay for the A.M.O. should start at Rs. 150 per mensem and if graduates are appointed they should get pay according to their cadre with some allowance.

(4) All other amenities which they have in cities should be provided for them as far as their bare necessities require.

But at the same time we expect from doctor friends in service to do the service honestly to the poor for whom they are paid.

It is impossible to render medical aid to each village with our present available medical men and finances. But it can certainly be arranged to give medical help to a group of villages, say within the radius of five or ten miles as the funds and personnel permit. An important town or village on the road side may be selected for the village group to work with. It should not be a one-man-show which is very hard to work and the work becomes tiresome and monotonous, and the man either loses heart in work or becomes invalid. So, for these groups of villages, I suggest a batch of workers consisting of a doctor, a lady doctor (or nurse), a sanitary engineer, a sanitary inspector, a veterinary doctor, an agriculturist, a social worker, a co-operative man and an educationist. They will form a society by themselves and will not feel monotony. As for equipment they should have a motor van, which will be equipped for dispensary and operation purposes. They should have all propaganda materials for all the members of the group with the implements for each worker. An ambulance with two-heeled stretchers for taking out the patients for examination and treatment will be of help. We should advertise for the group personnel to work out the cost and then we can settle the number of units according to our purse for each district. As our funds and personnel increase, we can expand further till we attain our desired object. For this purpose road communications should be available for motor transport, so that transference of a patient to a nearby hospital will be easy. All depends on money available and willingness to spend it on medical aid.

Each unit should have the aim for establishing minimum standard of nutrition for the villagers; they should look into their housing, clothing and recreation and formulate a working plan for all. Doctors should give medical aid, they should look into prenatal and maternity care. They should look into development of the child as regards its nutrition, immunization and other services needed for its healthy growth. They should form health organisation and health diagnosis for schools. They should encourage voluntary health Insurance of the villagers. They should organise to take care of old people and also educate villagers to spot preventable diseases.

When we introduce State medical relief for rural health service, the only disadvantage that is likely is the loss of incentive and levelling down mediocracy of individual personality and absence of leadership for the profession. This lowering down of the standard is a very real danger. But it can be remedied by frequent surprise visits and inspection and annual competition and prize distribution for better all round work of the unit, of the District and Province. If possible consideration may be given to the American Scheme. Unless general moral level rises no scheme will work satisfactorily.

I think the whole of the educational system needs overhauling right from primary to the medical education stage. In America general grounding in all the preliminary subjects—biology, botony, zoology is given while undergoing secondary education and the medical course is only of 4 years and again a good grinding for 3 years is given in postgraduate course when he comes out as a full-fledged doctor. We are to think of this scheme also. I agree with Dr. Seal's medical curriculum which is very exhaustive and complete. It is published in January Number of Indian Medical Association Journal of 1949. I would like to add psychiatry to be taught to medical students and there should be a separate branch for practical and commercial pharmacology and also of psychiatry. It is far advanced in America and is a valuable branch of medicine. Recommendations of Goodenough Committee are valuable guides and should form the basis of medical curriculum and hence I draw attention of authorities framing it.

All the same, good and efficient teachers are required who should inspire students by their dignity, learning, character and power of expression. They should create love and passion for the subjects taught. Salary of the teachers should be adequate to draw better class of teachers. Economy on this head is unpardonable.

Post-Graduate Education:—It is not the aim of the post-graduate education to keep the knowledge of general practitioners up-to-date but it should help in bringing out best scientists, professors, research workers and demonstrators. There is a big gulf yet between Colleges and Hospitals. It is to be bridged by careful adjustments so as to make post-graduate medical education a success.

The faculty of medicine is to be reorganised so as to fit in with the newly planned educational programme.

A separate committee should be appointed for the selection of teachers. Efficiency and knowledge should be the deciding factor in selecting candidates for these medical services and so also for college admissions and for sending students abroad for further eduucation.

Professors and teachers should belong to an all-India service so that they can be transferred to other provinces. This will keep the standard of education high. The staff can

get better and broader outlook thereby. Similarly the students should have the free option of joining any inter-provincial medical college; and medical education should be of one standard for the whole of India so that co-ordination and sameness will be well established.

There is an idea of double shift in teaching for turning out more graduates. It is possible only if we have the necessary staff. Our college is experimenting on it. Unless there is requisite staff admissions cannot be increased.

And unless the number of beds in hospitals attached to a teaching institute is doubled or trebled according to the number of students admitted, the double shift scheme is not workable.

Teaching Language:—I would prefer the English medium to continue for 15 more years. During that period medical dictionary in each provincial language is to be ready and all the medical books are to be translated in the respective provincial languages. Even though our words and voabulary can be prepared in our language, I still insist that all the prepared in our language, I still insist that all the international terminology, scientific and medical in Roman letters should be retained along with our terminology. This will help be retained along with our terminology. This will help students going abroad to follow their courses easily and will be economical. I really appreciate the decision of Osmania University who although translated the whole of the course in Urdu still retained the international terminology.

I was the silent observer at the All India Samanwaya Conference and was much amused to see the tussel among the representatives of the various 'pathies' to establish the supremacy of his 'pathy'. On seeing it I was reminded of a story of blind men quarreling on the shape of an elephant. We are exactly in the same plight. We carry our dogmas with the same tenacity and none of us is willing to part with his own theories called by him as his scientific basis. When greatest common factor of facts and theories are similar, integration is possible. Unless we think of the elephant of medicine as a whole and not in parts, we cannot be united as one. When we are one then alone we can think of integration of all 'pathies'. It is a good ideal to aim at but it will end in confusion if we attempt it early. The Madras Ayurvedic College and the Benares Hindu University Ayurvedic College proved that early integration ends in disaster; because the graduates are neither allopaths nor vaidyas. So let it wait. We can have all pathies' going on as they are. Let them all progress further till they reach the integration point. When all reach that point they will automatically unite. Savants of Western system of medicines are not yet satisfied with what they have got but they are still in search of that one truth that will be common to all. Dr. Kenneth Walker in one of his books on human physiology says that science is laying more and more stress on the oneness of life and in interdependence of all living creatures including vegetable kingdom. He further says that life is not an accident and the result of interplay of blind forces. Others in America also are coming to the same view. They say they have analysed and dissected enough. They have examined the biological products chemically, physically and biologically even with powerful instruments but they could not fathom their relation and meaning, yet.

I quite appreciate the idea of establishing the comparative hospitals as advocated in the Chopra Committee Report and I am for it but it should be followed on scientific lines with all modern implements to assist. The head of the institution should be an unbiased medical research worker of experience and under his guidance the heads of other 'pathies' should work and co-ordinate with him, to produce data for investigation and research. Other suggestions can wait till our comparative hospitals prove their efficacy.

Dr. Chandorkar then described the uncontrolled spread of spurious and understrength drugs and adulterated food stuffs. He suggested that a good equipped analytical laboratory in each Province will be a great boon and a check on these fraudulent goods.

He then dealt with the baneful influence of advertisement of drugs in the lay press and prevalence of quackery in the country. Superstitions, ignorance and costly allopathic treatment lead the public to quacks. The doctors are more for money than relief to the sick and the treatment adopted by them is becoming costly. This has to be improved upon.

He concludes with Shrimati Naidu's words "Let not Western education make you narrow and make you proud towards life". "I make an appeal to you to make your mind as wide as the sea". "You should give a living chance or opportunity to those who had not taken up the Western degree and who had been following what their ancestors had taught them in their Pathy".

FOURTH SOUTH INDIAN PROVINCIAL MEDICAL CONFERENCE, ANNAMALAINAGAR—The Fourth Conference of the South Indian Provincial Branch of the Indian Medical Association was held at the spacious Annamalai University Buildings at Chidambaram, South Arcot District, on 8th October, 1949.

Dr. P. A. S. Raghavan, Trichy, elected President, conducted the proceedings of the conference. Dr. T. S. S. Rajan, Hon'ble Minister for Health, Government of Madras, opened the conference. Dr. S. G. Manavala Ramanujam, Vice-Chancellor, Annamalai University, declared the Exhibition open. Dr. A. S. Mannady Nair, Surgeon General with the Government of Madras opened the Scientific Session of the Conference.

The following are excerpts from the Presidential Address by Dr. P. A. S. Raghavan of Trichinpoly delivered on 8-10-1949:—

It is a happy augury that this conference is being inaugurated by the Hon'ble Dr. T. S. S. Rajan, the doyen of our profession. He gave his hearty support to Col. Bholanath, one of the founders of the I. M. A., when he toured the country about twenty years ago. Dr. Rajan has been a tower of strength to the Trichinopoly Branch, of which he is a life member, and contributed the maximum of clinical material as long as he was in practice. Opnion may be divided as to whether it is advisable to have a medical man as the Health Minister, but we, in this province have been demanding, since the formation of the Congress Ministry, that a medical man should be in charge of the portfolio, and we are glad that the right man been given the right job. His monumental work during the first Congress regime was the ushering in of the Public Health Act, the first of its kind in India. He brought credit to our Province as being the first to abolish the medical school education in the country. It is hoped that he would put up a strong case to amend the Indian Medical Council Act in such a way as to give due representation to the Licentiates and see that no compartment

or schedules are created in the All India Register. We assure him of our whole-hearted support to all his schemes which we know will be in the best interests of the country and the profession.

We realise that the problems confronting the nation and the government are staggering, and it is becoming evident that it is beyond the ability of the Provincial and even the Central Government to cope with the situation, and it requires the combined efforts of global organisations such as the World Medical and World Health Organisations to tackle the problems of poverty, illness and death. We, as medical men and as citizens of this country, are also over-awed by the magnitude of these problems, but as constituents of the World Medical and Health Organisations we have also a duty to perform and thus contribute our mite to the solution of these problems. We, as individuals or as associations, can at best give suggestions to the powers that be and help them in the working they chalk out, to the best of our ability. But the main burden and the responsibility of preventing disease and giving medical relief is that of the Government, just as it is their responsibility to feed and clothe and house the masses.

Health Problems

Our country is so large and medical personnel so short that it would be necessary to combine the preventive and the curative aspects in the same individual at least in the lowest level, *i.e.*, the village unit. Our Provincial Government is giving effect to this part of the recommendation of the Bhore Committee by starting a number of Primary Health Units where the basic doctor would carry on preventive and curative treatment. The Bhore Committee has recommended the amalgamation of the two departments, Public Health and Medicine. But, our provincial Government, along with one or two other provinces, is not for such amalgamation. Anyhow, there is amalgamation at the highest level, the Ministerial, and at the lowest level, the basic Doctor level, and how far from above and how far from below there should be integration should be decided in the best interests of the country and the department.

It is an undeniable fact that the majority of the people in our country suffer from preventable and curative diseases. As for the preventable diseases, I have already stated that it is the duty of the Government to take all measures to prevent diseases. As for the curable diseases, they are of two kinds, those that get cured of their own accord and those that require proper medication. Fortunately, the large majority of diseases are self-curing, and hence the masses, particularly in rural areas get cured without any treatment. Those that get treated for these simple ailments by qualified practitioners or quacks begin to have immense faith in these people and as quacks outnumber qualified practitioners a hundredfold and as their remedies cost next to nothing, the impression is created that a large number of people prefer indigenous treatment. The question then arises as to how we and the State are going to render some rational treatment to the masses and save them from the clutches of quacks and well meaning but misguided friends and relatives who very often create complications even in simple diseases. The only method of tackling the problem is to educate the masses and supplement the recommendations of the Bhore Committee by starting more Medical Colleges to turn out more medical men and to start forthwith as many Primary Health Centres as possible. I would suggest that many hospitals and dispensaries in towns and cities may even be depleted of the paid staff and sent to the primary units. This staff may be replaced by honorary medical officers, and I am sure there are enough public spirited medical men, both young and old, who will gladly give this service. This seems to be the only way of tackling the problem and not by playing with life and death by implementing the recommendations of the Chopra Committee.

Chopra Committee

A perusal of the Chopra Committee report and the comments thereon will show that the committee went beyond its terms of reference and spent more time in reporting on how to synthesise the modern and ancient systems of medicine and how to give mass medical relief, than on the points at issue. In both these directions they exhibit lack of understanding of the situation in the country and are only carried away by a sense of false nationalism and psuedo-patriotism. Their recommendations even on the points of reference do not reveal a grasp of the real state of affairs in the country. Let us consider the three aspects separately, to realise the impossibility of implementing their recommendations.

Mass Medical Relief—The committee has cut the Gordian Knot in its scheme to flood the country with doctors in six months. They have recommended that all the quacks in the country who number nearly three lacs, be given a six months training in medicine, surgery, midwifery, ophthalmology, public health etc., and be given certificates and be registered in a Government register. If this help is not sufficient for them to carry on their depredations in the country, the Government should subsidise them. The Committee has not bothered to find out if these people know at least the three R's and even if they can read and write the vernacular, whether anything could be taught in the short space of six months, I wonder whether this scheme is intended to serve the masses or to help these quacks.

Synthesis—It is strange that such an eminent scientist and medical man like Lt. Col. Chopra and his colleagues should think that the views of the largest section of the duly qualified practitioners of the modern system of medicine as represented by the Indian Medical Association and also the opinions of the qualified practitioners of the ancient system of medicine such as the Ayurvedics, the Unanis and the Siddhas, who have all declared that synthesis is only possible in the highest levels after research by those who are capable of appreciating the good in each system, can be adopted only in the later stages. Instead of suggesting, that this method be adopted immediately, the committee has recommended that the hybrid system that was started 25 years ago in this Presidency, namely, that of giving training in a little of the modern system and a little of the ancient system, such as obtains in the School, now College of Indian Medicine, should be multiplied. It is an undeniable fact that the products of this institution practise only the modern medicine in a crude way as they are not well trained in this.

Improving the indigenous systems—Though these half-baked protagonists of the so-called Indian Medicine declare that the systems such as Ayurveda, Unani and Siddha, are God-given, perfect in themselves and need no addition from other systems of medicine, yet they do not practise it them-

selves. The committee forgets that the modern medicine is only developed from ancient medicine but suggests that all the subjects in modern medicine such as Anatomy, Physiology, Pathology, Biology, Medicine, Surgery, Midwifery, Ophthalmology, Radiology, etc., should be taught in the College of Indian Medicine along with the ancient systems, which according to them, has accumulated the accretions of centuries due to stagnation. The committee calls this "synthesis" and labels it as "Indian Medicine." This is just like importing all the parts of an automobile, assembling them in the country, and calling the product 'Indian Made'. It is impossible to integrate the various systems which have totally different and opposing basic principles on diseases and their treatment. During the last 25 years of this experiment, the various indigenous systems have been kept in water tight compartments in the School of Indian Medicine as it has not been possible to synthesise even the indigenous systems. How is it possible to integrate two opposing systems such as the ancient and the modern? If a student is taught for three years the basis of modern medicine such as anatomy, physiology, pathology, biology etc., and then be asked to study the ancient systems of treatment, how is it possible to avoid chaos and confusion in his mind? Lt.-Col. Chopra in his book 'Indigenous drugs of India' (1933) has stated that it would cause chaos and confusion in the students if they are asked to relate ancient theories to modern basic science. Has anything happened within this short period to make him change his ideas and sponsor a procedure which he then condemned? There is evidence to show that Lt.-Col. Chopra and his team surrendered their conscience and judgment to a clique that sponsor the mixed system of medicine in Madras. In proof of this, it may be pointed out that the L. I. Ms. in their Conference in March 1949 not only extracted passages from the Chopra Committee Report, which had not yet been published, but also stated that the committee found it difficult to come to any conclusion or draw up the report without the assistance of the L. I. Ms. and it was they that finalised the report. So, it is clear that the opinions expressed in the report are the views of the handful who represent the mixed-trained variety.

The University of Madras is now arranging to institute a five-year degree course in Indian Medicine, *i.e.*, in pure Ayurveda, pure Siddha and pure Unani without the admixture of modern medicine. It is doubtful whether the advocates of the present mixed study as given in the College of Indian Medicine, Madras, would approve of this decision. The opposition by our representatives is because the indigenous systems are not founded on progressive modern scientific basis, that they have been static for centuries and that they will not come up to the present-day needs. They also feel it will be a waste of time and a drain on the slender finances of the country to sponsor a number of systems of medicine. There is also the fear that this will be the thin end of the wedge to ultimately recognise the present system of combined teaching in the College of Indian Medicine, which has neither improved the old systems nor helped the new one.

The Hon'ble Dr. T. S. S. Rajan, our Health Minister, is a strong man and can be called the Sardar Patel of the South. He stated in his address at the Madras Medical College last month that he was baffled by the magnitude of the problem of medical relief and the paucity of qualified medical men in the country, and wondered if a cheap and short course of medical education could be evolved to meet the great demand. At the same time he is against lowering the standards. To uphold high standards of medical education he was the first in the country to abolish the medical school course in the Presidency so early as 1937, even though it was then one of five years' course but not upto the University standard. This reform is now being adopted in all the provinces of the country. I wonder how cheapness and efficiency could go together. He is also rightly against compartmentalism in medicine, and is now trying to abolish the same in service and have only one cadre of medical officers. Would not different standards of education perpetuate compartmentalism?

Dr. P. A. S. Raghavan.
President, IV South Indian Provincial Medical Conference

Our Health Minister at the Centre, Rajkumari Amrit Kaur, has condemned in no uncertain terms the lowering of standards even in emergencies (Calcutta, Dec. 1949). She deprecated the tendency in certain provinces (Central Province) to have short and cheap medical education to cater to the masses. She declared that it would, in the long run, be costly to the nation.

Medical Relief

As I said before, it is an admitted fact that diseases are rampant in the country and medical relief is absolutely inadequate and scarcely touches even the fringe of the population. The Government find that there is not enough money to start more medical colleges and produce more doctors. How are we going to tackle these problems? The following suggestions may be considered.

Disease can be broadly classified as preventable and those which are now inevitable. They can also be divided into curable and incurable. To tackle the problem, four aspects have to be considered and the needful done.

Preventable diseases—Diseases like malaria, filaria, smallpox, cholera, dysentery, plague etc., are preventable and should be tackled first. To prevent these, the standard of living has to be improved very much, and good water supply should be assured and decent housing conditions provided. As these can not be achieved in a day, other measures of preventing diseases have to be adopted immediately. They are educating the public to safeguard themselves against disease as far as possible by keeping their surroundings clean and by mass inoculation against diseases for which proved and efficacious vaccines are available. Our anti-vaccinationists will protest against this suggestion, as for one thing, according to them, preventive inoculation is unsatisfactory and a failure, and for another, they are afraid that if Government concentrate on this aspect they will neglect other public health measures, under the complacency of having done their duty. As regards the first fear, it has been proved beyond doubt that inoculation is the one single measure to prevent the spread of some of these diseases in epidemic form. Regarding the fear that our government will neglect measures for improving the health of the nation, it is to say the least distrusting our own leaders and suspecting that they will become negligent about their responsibility and that they are not capable of taking care of the masses. If there is any slowness in tackling the problems of health and disease, it is due to the immensity of the problem and the very short time that has elapsed since they have taken charge of the administration of the country, as well as the unexpected events that have happened since then. In spite of these handicaps, our health matters are being tackled in the right way, and if there are some defects and drawbacks, they are unavoidable.

Curable Diseases—Fortunately many of the diseases are self-curing or are curable and with the rapid advance of science and the discovery of antibiotics and chemotherapeutics more diseases are being transferred to the list of curable diseases, than was the case a decade ago. For self-curing diseases, such as influenza, smallpox, typhoid, etc., it would be enough if the patients are taught not to interfere with nature's process of healing by resorting to quack remedies and the advice of well-meaning but ill-knowing friends and relations and thus avoid complications. As for simple diseases which are curable by safe remedies, such as malaria, diarrhœa, scabies etc., the public health staff, *i.e.*, the Sanitary Inspectors and Health Visitors may be taught to carry out the necessary treatment. They can also be taught how to prevent infections after injuries and by knowing first aid they can prevent serious diseases and deformities. They can also be taught to detect serious conditions and refer such cases to the nearest doctor. So the only possible quick and cheap method of carrying on preventive and curative measures to the masses in the villages, seems to be to increase the public health personnel a hundredfold with a training in the above matters. If the country is flooded with such people, it will help to reduce the incidence of disease and also give breathing time to the Government to turn out fully qualified medical men. There will be no fear that these health staff would give up their jobs and start practice, as would be the case if all and sundry are merely labelled as doctors.

While on the subject of medical relief, I would like to discuss a little and say a few words on the three great scourges, Tuberculosis, Leprosy and Cancer.

Tuberculosis—Though tuberculosis is a more infectious and more dangerous disease than leprosy, there is no stigma attached to it as in leprosy, as it is not usually apparent to the naked eye. At one time it was even considered fashionable to have the disease. Fortunately, tuberculosis is easily preventable and curable in a short time, if detected early. One most important method of preventing the spread of this disease is to take particular care of the sputum, collect it religiously and destroy it ceremoniously. This aspect of prevention has to be dinned into the ears of the public in season and out of season till it catches the popular mind. The other method of prevention is by vaccination with B.C.G. When this B.C.G. vaccination campaign was started in Madras last February, there was a tearing controversy for and against it. Those against it argued that vaccination of any sort was useless and dangerous. Others argued that vaccination is still in the stage of experiment and that we should not take risks with it but wait till it becomes established and fool-proof. This argument savours of selfishness. If we take no risks and do not contribute to research, we will always be followers and never leaders. Moreover, test and trial have proved its efficacy in the Scandinavian countries and in America, and now, France and England are making it compulsory. It is a well-known fact that sublethal doses of any infection create anti-bodies which resist a serious attack of the disease. Statistics reveal that a large majority of people have already received, naturally, such doses of the infection and have developed a certain immunity. It is only for those, who by tests, are found not to have had it, the protection artificially by vaccination is advocated. To date there have been no reports of harmful results by such vaccination. The Laubek tragedy is an accident due to a mistake, and that cannot be quoted as an argument against B.C.G. vaccination. Even with proved remedies like Penicillin and many common drugs, there have been fatal accidents, yet we have not rejected them.

Regarding treatment of tuberculosis by the sanatorium method, it gladdens one's heart to see that many districts are arranging to have their own sanatoria to cater to their needs, but I wonder if our approach to the problem by this method is the right one. It must be remembered that to construct a decent sanatorium of about 100 beds we require about 5 lacs of rupees and to maintain it cost about Rs. 50,000/- per annum. A patient on the average requires about six months treatment in the sanatorium and assuming that the cure rate is 50 per cent we cure 100 patients in a year. Out of these only a small belong to the upper middle class and the rest to the lower middle or poorer classes. When they are discharged cured, they go back to their old surroundings and worsened circumstances and so the disease recurs in many of them and they die. Moreover, we cannot have enough number of sanatoria to meet the needs of all the tuberculosis patients in the country. I think sanatoria are useful only for the richer classes and to those who can afford to have long treatment and a longer period of rest and rehabilitation and to serve as surgical and research centres. The poorer patients should be treated in their own homes and in their own surroundings, so that there will not be any difference between the place of their treatment and their usual residence. The very useful surgical procedures like artificial pneumothorax and phrenic avulsion can be easily

done in patients' homes. Incidentally, this method of home treatment would also help to improve their houses and surroundings and inculcate in the residents of the locality a sanitary conscience and in contacts better preventive practices. Every District Headquarters Hospital should have a special ward for treating cases of tuberculosis by the surgical methods, such as thoracoplasty, lobectomy etc.

Leprosy—In the case of leprosy, institutional treatment would be more useful, and it would be availed of by the poorer class of leprosy patients, for, the treatment of leprosy is more painful and prolonged. Along with it rehabilitation measures can be carried on in most cases. After discharge there is no great likelihood of recurrence of the disease, and the patients can carry on their avocations. Even here, there is great difficulty because the patients have to be kept away from their homes for a number of years. Able-bodied leprosy patients, who are also the breadwinners, are not tempted to seek admission into the institutions. Since by experience it has been found that infection in leprosy occurs only by continuous and constant contact, particularly of children, and that contact is more intimate at nights it would be very useful to develop night segregation camps in villages where the incidence is high. Treatment can also be carried on in these camps. Establishment of such camps as at Polambakkam have caused a lowering of the incidence of the disease. Even if there is delay in taking treatment to the villages, much can be done by educating the patients and their families to observe night segregation of patients even in their homes and in isolating the patients bed, clothes, utensils etc.

Cancer—We should congratulate the Government of Madras on their wise decision to start a wing in the General Hospital, Madras exclusively for the treatment of cancer by a team of doctors, who would also carry on research. We are also glad to hear that the Government propose to set apart wings and give facility for the treatment of cancer in the Stanley and Kasturba Hospitals. It is good news that these facilities would also be extended to some of the larger district hospitals to save patients the trouble of treking to the metropolitan city. May we suggest that even before giving these facilities to the other hospitals in the City, at least three regional hospitals in the mofussil, say the Government Hospitals at Madura, Visakapatnam and one on the West Coast, be immediately equipped to give cancer treatment?

Nationalisation of Medicine

The only way of tackling the problems of health and disease on a permanent basis is to nationalise medicine as has been done in England now. In India, fortunately for us, modern medicine is already partially nationalised, for this system has been widely administered through government agencies or through the local bodies. When the Workmen's State Insurance Scheme, which is now being worked out, is put into effect, another stride in nationalisation would have been taken. I realise this is not nationalisation in the proper sense as is being carried on in England, but because we have been moving in that direction almost ever since the western system was adopted in this country, and as it is only during the last 4 or 5 decades that the modern system has found sponsors amongst the private practitioners, it may not be very difficult to nationalise medicine in this country if only the money could be found for it. It looks as if it would take ages to attain the millennium and in the present financial position of the country with the devaluation of the dollar, we do not know where we are. But, though wholesale nationalisation may not be possibe in the near future, attempts should be made to make the Primary Health Centres, that are being started in all districts, serve such an ideal.

Doctors and Social Service

Our duty does not end by merely advising the powers that be to do this and that of criticising whatever is done by others. It is not enough if we merely attend to our professional work and feel satisfied that we have served humanity. Each one of us should do some social service for the public at large. It is usual for us to say that we are too busy and have no time to spare, and that others should take up such work. We as medical men are best fitted for social service. By experience and from the example of others, I realise that the busiest practitioners and the hardest worked official can always find time not only for recreation but also for such service if he is methodical in his work. Unless we place service above self, we shall not deserve to be called members of the noblest profession.

* * * * *

The following resolutions were passed at the fourth S. I. Provincial Medical Conference:

1. This conference places on record its deep sorrow at the passing away of the doctors S. K. Sundaram, S. Thambiah, H. M. Rao, Sambasivam of Madras, J. S. Victor, T. S. Venkataraman, C. S. Pandidurai, T. P. Balaji Rao, Jayaraman, O. R. Balu, D. Narayanaswami Pillai, S. D. Velukannu, T. R. Vaidyanatha Iyer and Narayanaswami and the same be communicated to the members of the bereaved families.

2. This conference notes with satisfaction the assignment of the health portfolio to a member of the profession and trusts during the Hon'ble Dr. T. S. S. Rajan's tenure of office much will be done to improve the health of the people and afford greater medical relief.

3. This conference conveys its congratulations and felicitations to Dr. V. Krishnamoorthy, L.M.P. L.O., Cuddalore, for having been chosen as a member of the Senate, Madras University, a deserved and unique distinction from amongst the rank of Licentiates.

4. This conference resolves that the integration of various systems of medicine is possible only on the higher level *i.e.*, after research into the indigenous systems. Integration of various systems of medicine at lower levels as attempted in the School of Indian Medicine during the last 20 years has not been successful and products of this school administer only modern system of medicine for which they are ill-trained.

5. The suggestion of the Chopra Committee that the introduction of the six months training in public health and curative medicine, surgery, midwifery, ophthalmology etc. is impossible as the time is too short a period for this.

6. This conference is of opinion that the only method of carrying on medical relief to the masses is to implement the Bhore Committee in full.

7. This conference notes with satisfaction the opening of 21 primary health centres and urges on the Government to open as many more as possible, in view of the urgency of the need of medical relief in the country.

8. This conference suggests to the Government that one or two mobile units be attached to each Taluk Hospital from where the units which should consist of a Doctor, a Lady Doctor, Nurse and a male attendant should visit a number of villages a day according to the pre-arranged programme announced to the villages concerned attending all simple ailments and bring back with them cases requiring hospitalisation to the Taluk Head Quarters Hospital. The villages in the Taluk may be visited once or twice a week and medical aid carried to the suffering villagers.

9. In the appointment of medical officers of these centres the claims of the licentiates should be duly considered and preference should be given to such of those of subsidised medical officers who are already serving in that locality (within a radius of five miles).

10. This conference is of opinion that it is possible to reduce the five years medical course to one of four years by judicious planning of holidays and syllabuses without lowering the standard of education.

11. This conference requests the University of Madras to allow the students to sit for the final examination of Medical curriculum provided they produce certificates of having undergone the medical course in other Universities.

12. This conference requests the Government of Madras that in order to meet the needs of the country more medical colleges should be started immediately in various parts of the Province. This conference suggests to the Government that large sums of money need not be spent on buildings but the existing buildings which lodged the medical schools in Madura, Tanjore, Calicut and Guntur be utilised for the purpose of new colleges where the standard of education should be of the present M.B. course with Intermediate in Science as basic education. If there is any difficulty in the Universities giving recognition to these colleges for want of adequate buildings as per their requirements this conference suggests to the Government that a college of Physicians and Surgeons as in England be constituted who will conduct examinations and issue diplomas to the products of these colleges. For the purpose of practice and appointments in the Government and all other services these diploma-holders should have the same facilities and status as University graduates as it is in England.

13. This conference suggests to the Government that in order to provide adequate teaching personnel full facilities be made available for the post graduate studies to all those who desire higher qualifications.

14. This conference protests against the continuance of the Indian Medical Council Act of 1933 and request the Central Government to amend the Act forthwith in such a manner as to include them in its purview giving adequate representation and to establish an All-India Common Register common for all qualified medical practitioners where their names should be published in an alphabetical order irrespective of qualifications they possess. This conference requests the Government of Madras to recommend the above amendment to the Central Government.

15. This conference suggests to the Government of Madras that the service of Medical men should not be wasted on public health work, but a separate course of 3 years on public health be instituted for filling up the health officer's posts.

16. This conference resolves to request the Central Association to press upon the Government of India the claims of the Licentiates for permanent commissions in the army on a par with the graduates.

17. This conference requests the Government of Madras to throw open more posts as Civil Surgeon to Women medical officers.

18. This conference requests the Government of Madras to prohibit unqualified and unregistered medical practitioners (though qualified in medicine but not registered under Medical Registration Act) from issuing prescriptions or practice medicine.

19. In view of the grave financial situation of the country consequent upon the devaluation of the currency this conference requests the members of the Medical profession to limit their purchases of drugs and other materials in the dollar areas and also to encourage indigenous drugs as far as possible.

20. This conference is happy to note that the unification of civil medical services is under the active consideration of the Government of Madras and requests them to consider at the same time the provincialisation of the local board and municipal Medical services. Till provincialisation is achieved, the Government should insist the local bodies and Municipalities to give the same scale of pay as obtains in Government service just as they do in the cases of Health, Engineering and other services.

21. This conference requests the Government of Madras that in making appointments to primary health units, the claims of the licentiates and subsidised practitioners should be duly considered and that preference should be given to such of those medical officers who are already serving in the locality (within a radius of 5 miles).

22. This conference reiterates its resolution regarding the admission of students into Medical Colleges on merit alone and also requests the Government to reserve a reasonable percentage of seats for the children of medical men.

23. This conference requests the Government of Madras to consult the Provincial branches of the I.M.A. and A.I.M.L.A. in the formation of the Committees, intended for the purpose of formulating measures on medical and public health problems.

24. This conference requests the Government of Madras to promote the deserving licentiates for the post of the D.M.Os. and D.H.Os.

25. This conference requests the Government of Madras that a uniform standard of subsidy should be given to Rural medical officers whether licentiates or graduates and enhance the present subsidy in view of the high cost of living.

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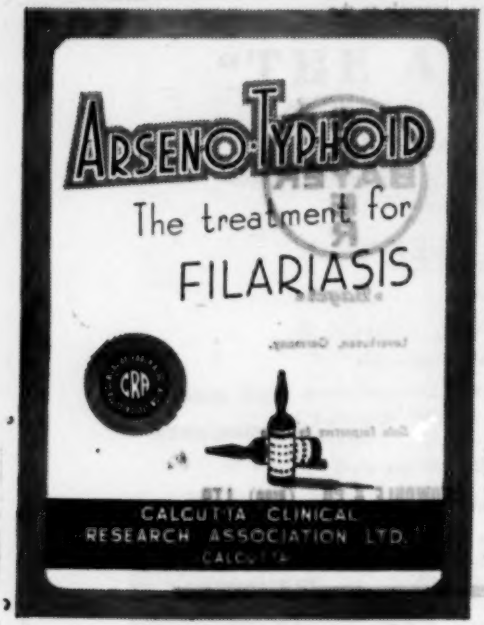

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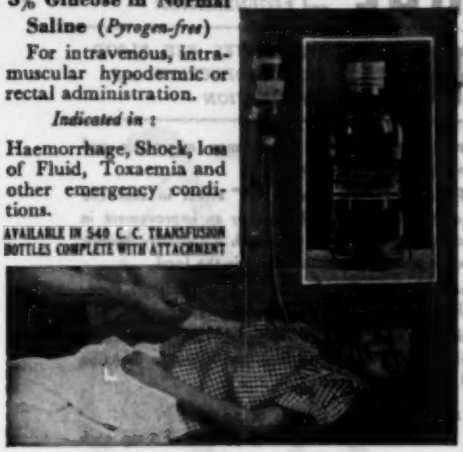

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